GAS JOURNAL

LIGHT ✂ HEAT ✂ POWER ✂ BYE-PRODUCTS

(Founded in 1849 as the "Journal of Gas Lighting.")

PROPRIETORS: WALTER KING, LIMITED. OFFICE 11, BOLT COURT, FLEET ST., LONDON, E.C. 4.

Telephone: Central 6055. —— Telegrams: "GASKING, FLEET, LONDON."

VOL. CLXXXVIII. No. 3468.] WEDNESDAY, NOVEMBER 6, 1929. [81ST YEAR.

Editorial Notes.

The Eastbourne Conference.

THERE was complete unanimity of opinion on the part of all who were fortunate enough to be at Eastbourne that the Eighteenth of the Conferences of the "B.C.G.A." was the most successful of them all—and that is a great deal to say. Moreover, it is in no way a disparagement of the wonderful conferences that have preceded it, and which we recall to-day as we write of yesterday. Manchester will always stand out by itself in the memory of all present there. No such conference had ever been held, or thought of, before in the history of the industry; and it was, as Mr. Goodenough reminded his audience at last Wednesday's lunch, as much a surprise as it was a satisfaction to Sir (then Mr.) Corbet Woodall to find himself presiding over such a series of functions as made up the Manchester triumph. To-day, the series of great meetings that have taken place since the war—in Sheffield, Glasgow, Bristol, Birmingham, Liverpool, Plymouth, Newcastle, Southampton, and York—each with its special features, and each leading through greater experience to yet greater achievement, tend to dim the memories of the earliest days; and we have no intention of wearying our readers with reminiscences. We only want to remind some, and to inform others, of the fact that to-day's triumphs are the fruit of the good sowing of the past. Such conferences as that at Eastbourne do not "just happen." They are built with infinite pains and thought upon foundations well and truly laid in bygone years.

Eastbourne, of course, stands out by itself, because of the visit paid to the Conference by the Duke and Duchess of York, a visit that, though necessarily brief, was most gracious and cordial, and gave great satisfaction to every representative of the industry happy enough to be there. It will long be remembered as the first public recognition by the Royal Family of the industry as an organized unity performing national services through national institutions; and it must have been very gratifying to those who assisted at the birth of the Association and have given it unceasing service throughout its growth. We join with the whole industry in congratulations and thanks to them.

But satisfaction at the éclat given to the Conference by the visit of the Duke and Duchess—for which Eastbourne, as the Mayor generously acknowledged, was primarily indebted to the Association—must not blind us to the fact that, the Royal visit apart, the Conference was an outstanding success. Not only did Mr. Frank Jones represent the industry in Devonshire Park on the occasion of that visit with the charm, modesty, and dignity of a fine English gentleman of whom we were all proud, but he opened the Conference with an address which placed the industry under a great debt and impressed all his hearers by its candid confession of conversion from the exclusively engineer's view of the industry to that of the progressive administrator who fully recognizes the prime importance of the commercial side of industry, and who sees all that is implied in that recognition. That address is the greatest step that has been taken for years towards the 100 p.ct. unity of the industry which is so greatly to be desired. We feel that consummation to be sensibly nearer since Mr. Jones spoke at Eastbourne. Furthermore, any conference would have been distinguished at which two such addresses as those of Lord Eustace Percy and Sir Lawrence Weaver were given on one day, and so statesmanlike a speech as that of Mr. Arthur Hayday and two such valuable papers as those of Mr. Croft and Mr. Moon made up the programme for the next. On all grounds, Eastbourne was a record triumph. But we do not imagine it will long remain unbeaten; that is not the way of the "B.C.G.A."

In the Vanguard of Education's Progress.

PRIOR to delivering his address on education for commerce and industry, Lord Eustace Percy offered an apology to those of his hearers who might consider that his remarks did not concern the gas industry very closely. We imagine, however, that few executives of our great industry would think that this apology was necessary, for the problem of education in its widest sense applies as much to the manufacture, sale, and utilization of gas as it does to any other industrial organization. We need executives and we need specialists; whether in the gas industry these can ever coalesce generally is a question which requires very deep thought. One thing is certain—that both administrative ability and particular scientific knowledge must be founded on a basis of general education which is carried to a higher and broader standard than that which is current to-day.

Lord Eustace Percy emphasizes that there is an urgent

need for the Englishman to read, write, and think fluently and accurately in at least one foreign language, particularly in French and German; and he points out that employers are doing disservice to the individual and the nation by failing to encourage study of languages both during and after the school period. Knowledge of a foreign language is more necessary to-day than ever before, thanks to the modern travel facilities and the spirit of internationalism. The executive who is unable to make effective contact between himself and the foreigner is continually losing something which is vital to progress. His horizon and his sphere of influence are narrowed. And at a time when the ideal of an international pool of knowledge and experience of scientific work is being translated into practice, precisely the same thing applies to the specialist. The whole scheme of education after the age of sixteen needs attention and action.

Speaking particularly of the policy of industrial employers towards their workshop staff, Lord Eustace Percy suggested that current ideas and practice often lead to little or nothing because, as soon as a boy has become a fully skilled worker in the shop, his education is regarded as finished. We think that, in general, the gas industry cannot be stigmatized with such a policy, for it is in fact an industry which endeavours to encourage talent when it sees it, and which largely succeeds in its efforts in this direction. Even so, doubtless much more could be done to separate the creative from the non-creative mind, the research worker from the routine chemist, the leader from the led. No boy who becomes genuinely keen on his phase of work for the industry—however humble his task may appear at the time—should, after steady application in a desire to improve his knowledge and quicken his interest, feel that his efforts are rewarded by nothing more than a life in the over-populated valley of obscurity. He should be guided in his wish to transform a "rough diamond" into a polished gem, for it is most unusual to find a boy who knows how best to effect this unaided in the crude state. Concluding his address, Lord Eustace Percy said that commerce and industry, if they are wise, will have a greater and a more direct voice in, and responsibility for, the policy of our technical colleges in the future than in the past. It is not too much to say that the gas industry is in the vanguard of this movement.

Gas and Labour.

It was a happy inspiration which led the "B.C.G.A." to invite Mr. Arthur Hayday, M.P., Vice-President of the National Union of General and Municipal Workers, to address the conference on the subject of the importance of the gas industry not only to the workmen employed in it, but to the working man's home in general. His address was a useful corrective of certain loose statements which are constantly being put forward in the over-zealous advocacy of "electricity for everything" in political and other non-expert quarters. In their anxiety to provide work for the workless, there are "all too "many folk prone to forget the older established gas "industry and all that it has done for labour, and to "favour and foster the new baby electricity, just because "it is new." Such excess of zeal, as Mr. Hayday said, "may well put out of employment thousands of workers, "with no corresponding advantage to anyone else"—a fear which is amply justified by the fact that gas undertakings alone employ over a hundred thousand workers, whose positions are threatened merely "in order that the "same services shall be rendered by electricity, at greater "cost, with a huge waste of coal and chemicals, and with "a smaller amount of labour employed."

The public is undeniably fascinated by the romance of electricity, marvelled over in the columns of the Daily Press and the pages of popular magazines, until they forget that "there is every whit as much romance and "wonder in the conversion of the coal formed millions of "years ago out of the primeval forests into the drugs, "dyes, disinfectants, fertilizers, oils, and motor spirit "and scores of fine chemicals, as well as into gas and "coke which represent 75 p.ct. of the coal's heat energy, "as there is in getting only 20 p.ct. of the heat energy "out of it in the form of electricity, and losing all the "rest and the chemical wealth as well."

We like Mr. Hayday's realistic picture of the improvement in the worker's home brought about by the gas cooker, which enables him to get a hot drink and a hot meal before leaving home first thing in the morning, even if he has to do it himself, for "even a man can cook by gas." He might be able to do the same thing by electricity, but only at greater cost—and cost is an important item to the working man. No one wants either gas or electricity to claim to be the cure-all in home or in industry; but we do want each to be fully utilized in its proper sphere, and no favour shown to one because it is fashionable, and because some parrot-like voices claim that it is "the coming thing." Those who urge the use of electricity for purposes to which it is unsuited are not only doing the public a signal disservice, but are wantonly endangering the position of a body of workers whose loyalty to duty and happy relations with their employers are an example to the nation.

Mr. Hayday appealed to his colleagues in Parliament to look into the matter very carefully—not to let rank injustice be done to a great body of workers in this "old but ever young and progressive industry," and not to run madly after what might prove to be a "will o' the wisp." Let them pay close attention to the position of the large number of co-partners in the gas industry whose savings are every bit as much entitled to be safeguarded as the larger interests of the financiers; and he urges once again the removal of the legal restrictions under which the gas industry is still struggling.

The Glow of Satisfaction.

The address was, in fact, one of the finest interpretations of gas service which we have heard. Amid a whirl of new ideas gained with suspicious facility, when Fashion is elevated to the status of a goddess, Mr. Hayday pleaded powerfully to the public of Great Britain that they should exercise a sense of proportion in regard to the light, heat, and power problem. There is a dangerous tendency to-day to follow madly the shadow and entirely to neglect—even to despise—the substance. The shadow is electrical possibility; the substance is actual gas service. "It is tiresome and futile," said Mr. Hayday, "for either "the electrician or the gas engineer to claim to be the one "and only cure for all ills in the home or factory." It is more than tiresome to realize what a serious effect exclusive mental slavedom to electricity may have on the future of this country.

Even well-informed members of the public are almost entirely ignorant of the services which the gas industry has performed. Only the other day a friend who takes a lively interest in communal affairs expressed unbounded surprise when he was told that during the last five years the rate of growth of the gas industry has been faster than that of the electricity industry; and he is one of many. Percentage increases are beside the point; it is the quantity of energy delivered that matters. The whole trouble is that, outside the gas industry, very few people indeed know anything at all about its working or its value; otherwise the public-spirited would experience a glow of satisfaction in the abstract, just as thousands—indeed, millions—of our workers to-day are experiencing a glow of satisfaction in the concrete. We refer to the revolution which gas has wrought in the lives of what is termed the working-class; and in this connection it engenders a glow of satisfaction to quote Mr. Hayday: "Gas has "already made possible what the advocates of 'electricity "'for all' can only promise; and at a price the poor can "afford to pay."

Four-and-a-half million penny-in-the-slot meters have been put into the homes of our workers during the past generation; and they have driven dirt and drudgery and danger out of these homes. And yet, because the romantic spell of electricity has culminated in widespread hypnosis, there are many who talk as though the working woman

was still living in the dark ages. Truly the plea for a sense of proportion is more than justified.

It is not our purpose here to reiterate the phases of gas service mentioned by Mr. Hayday; our readers could wish for no clearer or more forceful statement of the case than was given in the address. But we do desire to express gratification regarding his comments on the gas industry's interpretation of hire-purchase trading. This interpolation is significant proof that "Service" is the watch-word—not the catch-word—of the industry; just as the practice of co-partnership, so warmly praised by Mr. Hayday, is significant proof that decent human relationship between employer and employed is no idle sideline of the industry's internal service policy.

The address could with advantage be broadcast among all the workers, not only in the industry itself, but in the ancillary trades, as well as in the millions of working men's homes.

Tell the World.

THROWING modesty (or is it apathy?) aside, this is what the gas industry has to do, partly through the British Commercial Gas Association, and partly through other channels. While we are speaking about the "B.C.G.A.," we must compliment them most heartily on what to our mind is the finest Press advertisement for gas yet designed—the whole-page colour print in "The Times" Printing Number, a copy of which the President of the Association, Mr. Frank Harding Jones, asked the Duke of York to accept. It is no longer necessary for us to say that the national publicity of the Association is essential, but we reiterate the suggestion that closer linking of national and local propaganda would do a power of good. We also suggest that careful attention be paid to methods of publicity other than those offered by the written word or the graphic illustrations in the newspaper. Several of these methods were dealt with by Mr. C. M. Croft, Chief Engineer of the Wandsworth, Wimbledon, and Epsom District Gas Company, in a paper on "Service to the Consumer," which, very appropriately, he presented immediately after Mr. Hayday had delivered his address.

By all means let us increase our national and local Press publicity, but let us also strive incessantly and efficiently to strengthen this publicity by personal relationship with the consumer. No man should be employed by a gas undertaking unless he relieves the consumer of trouble and annoyance. This is not merely a matter of the employee's desire; it is fundamentally dependent on the policy and organization of the undertaking. The policy obviously should be to instruct the employee regarding what is expected of him; the organization, equally obviously, should be such as to enable an intelligent and willing employee to translate the policy into effective action. As Mr. Croft remarked, "That's not my department" is a reply which no one connected with a gas undertaking should offer to a consumer's query. Such an answer gives the impression of lack of interest in the consumer, who condemns the undertaking—and through this the gas industry—for the inefficiency of the individual to whom he has spoken. The whole idea of such a reply—and this is what we are trying to emphasize—is rotten.

There are good jobs open to efficient men in the industry, but even now employers' indifference to indifferent employees is noticeable in many quarters; and this implies, as a corollary, indifference to efficient men—particularly in regard to adequate remuneration. There is, as Mr. Croft points out, no excuse for a discourteous telephone operator. Orders have gone to a competitor solely through discourtesy in telephonic communication; and the management which does not take the trouble to select satisfactory operators is hopelessly at fault. Singing "Service" in the Press and shouting "No" rudely into the telephone transmitter is just as absurd as trying to fill a bath without inserting the plug. In a few words, the chain of service must be complete from Chairman to office-boy or syphon pumper.

Mr. Croft considered many of the links in this chain of service—employment of experts, organization of showrooms, attention to escapes, adequate carcassing, maintenance, demonstrations and lectures, and so on—and his paper will be carefully studied. The chain remains static, however, without enthusiasm; and without enthusiasm, we shall never be able to "tell the world." Mr. Croft rightly assesses its value; and it is due to enthusiasm, we suggest, that the Wandsworth Gas Company have succeeded in installing gas lighting in all the Woolworth shops in their area of supply.

The Modern Fuel.

ENTHUSIASM also, we think, has played no insignificant part in the invigorating success which has rewarded the activities of the Bournemouth Gas Company. Details of these activities and of their outcome were given by Mr. P. G. G. Moon, Engineer and Manager of the Company, in a paper entitled "Gas, The Modern Fuel," in which he described and illustrated a few gas installations in hotels, restaurants, boarding houses, public institutions, and homes in his area of supply. The paper, together with photographs of actual installations, will be published in the "GAS SALESMAN" next week. The Bournemouth Company have every reason to be proud of their record, for during the past ten years their output of gas has been practically doubled. Since 1912, appliances to the value of over half-a-million sterling have been sold to householders, hotel keepers, boarding-house proprietors, and restaurateurs of Bournemouth, so that they can at least be numbered among those who regard gas as the modern fuel.

In Bournemouth there are about 70,000 gas fires, and, of these, at least 10,000 are in the bedrooms of hotels or boarding-houses. Gas heating has proved a boon not only to the visitor, but also to the hotel proprietor, as will be gathered from the fact that half the inquiries received by one of the principal hotels from prospective Christmas visitors contained requests for rooms fitted with gas fires. Incidentally, the fires have been "fitted," as distinct from being "put in." Piping has been concealed, and the prepayment meter has been accommodated in artistic fashion, as befits a "modern fuel." Those of our readers who had no opportunity of being present at the Eastbourne Conference last week will find the illustrations in the next issue of the "GAS SALESMAN," showing two of the methods employed to house the meter, exceedingly interesting and suggestive.

Mr. Moon's paper is essentially a statement of fact, not an essay in controversy; but there is one sentence which we will quote: "It is very desirable that both the gas "company and the hotel proprietors should look at this "question of bedroom fires from a broad point of view, "and avoid charging an excessive price, either for the "installation or for the gas supply to it once it is in-"stalled." This is extremely important. The gas undertaking is paid through a master meter; the user pays through his prepayment meter. The difference in cost of gas in the two cases is governed by the cost of the installation and the hotel proprietor's idea of reasonable remuneration for capital outlay. In Bournemouth the difference averages 2s. per 1000 c.ft. We hope that the user realizes the reason for this difference, and, should the hotel fire be his introduction to gaseous heating, does not run away with the impression that a gas fire installed in his own home would have the same running costs. We hope, in other words, that he will bear in mind his past experience that the charge made for a coal fire in an hotel bedroom compares unfavourably with what it would cost him at home. The question is a delicate one; and Mr. Moon's observation which we have quoted is very much to the point

As we have said, in Bournemouth gas is certainly regarded as the modern fuel; this note would be woefully lacking if we did not call attention to the extent to which gas is employed for lighting in the recently erected houses in the Company's area.

FROM THE "B.C.G.A." CONFERENCE.

Big Attendances.

Excellent attendances were a feature of last week's meetings. At the dinner on Tuesday evening, which brought to a close a Red Letter Day, the President remarked that the members of the Association were not in Eastbourne for their own personal pleasure, any more than had been Their Royal Highnesses, and that he would be disappointed if large numbers did not attend the business session on Wednesday morning. In the event, Mr. Frank Jones had no need to be disappointed; this feeling was reserved for any who may have stayed away from the meeting. The large number who did attend had placed before them a feast for the mind, consisting of precisely the sort of sustenance which the distribution side of the industry requires. From beginning to end, Mr. Frank Jones justified the Association's choice of him as President by the businesslike manner in which he conducted the proceedings. He made an admirable Chairman, which was their reward; and he was a popular Chairman, which was his own reward. We hope to see him on many future occasions taking a prominent part in the general activities of the industry on whose behalf he is so indefatigable a worker.

The Ladies.

It was quite right of the President to draw attention to the fact that the members and friends were in Eastbourne primarily for business, and not for pleasure; but others must, like ourselves, have experienced a difficulty in deciding precisely "which was which," for the business was just as pleasurable as the pleasure. For this, of course, thanks are due in many quarters. A host of people worked to ensure success; and no one can have failed to "pull his weight." In the course of the proceedings, as reported on later pages, generous—but not too generous—tribute was paid. With some experience of such matters, we would like here to register ours. Further, as must inevitably be the case when they are present, the ladies earned deep gratitude. Beginning with the Monday evening, the guests were received by the Deputy Mayor (Councillor Miss Hudson), by whose side stood the President and Mrs. Frank Jones. Then on the Tuesday the Duke and Duchess of York were received by Mr. and Mrs. Frank Jones and Mr. and Mrs. F. W. Goodenough; while a bouquet was presented to the Duchess by Miss Rosemary Croft, who thus assisted her father, Mr. C. M. Croft, in his invaluable work for the Association, Mrs. Jones and Mrs. Goodenough, together with Mrs. Henry Woodall, were among the many ladies who were subsequently presented.

The New President

The Association has indeed been fortunate in its Presidents; and the brilliant line is to continue. Sir Corbet Woodall was President at the first conference, held in Manchester in 1912; and his son Mr. Henry Woodall will preside next year at the nineteenth annual meeting, which is likely to be held in Hull. Mr. Henry Woodall, like Mr. Frank Jones, is of the third generation of gas engineers and administrators. Both have sons who are preparing to follow them; and both also have grandsons. The grandson of Mr. Henry Woodall (who is, we feel sure, destined to be the fifth generation of gas engineers and administrators) is appropriately named Corbet Woodall; and we are told that he "is already learning to lisp the praises of his gas fire, suitably supplied by the Gas Light and Coke Company, which adds very considerably to his pleasure and comfort." May he flourish, and remain steadfast in his faith!

And the Next Meeting.

As mentioned above, an invitation to hold the next annual meeting at Hull has been extended by the British Gas Light Company, Ltd., whose Chairman and Managing Director Mr. Henry Woodall is. He has, on behalf of the Company, promised the members a welcome; and we know that it will be a cordial one. Mr. Henry Woodall rightly thinks that "he showed great wisdom in the choice of his father." Sir Corbet Woodall, we would add, was not less wise in his choice of a son.

The Address.

The Presidential Address was reproduced in last week's "Journal," and so by this time readers will have studied it. To do so will have been well worth their while. Mr. Frank Jones dealt with the humane side of the work of the industry; and in this connection his reference to the honoured name of George Livesey was received with applause. Sir George Livesey's great work in improving the position of the employee was done while at the head of the South Metropolitan Gas Company; and that same policy is still pursued by Dr. Charles Carpenter as President of the Company, and Mr. Frank Jones as Vice-President. This is one aspect of "Service"—the text taken for the Address. The other aspect had regard to the consumer and to the community at large. Model employers, the gas industry must aim at being model servants. Only the best service can be good enough.

Electricity and Eyesight.

Here is a point from the Address which salesmen may profitably bear in mind. Mr. Frank Jones said: "I believe that, with good 'Service' (including good propaganda), gas will long remain the principal method of providing cheap and efficient artificial light. May I say that I regard it as a crime against the eyesight of mothers and children to persuade the poorer to substitute a light of which they cannot afford to burn enough for the thorough lighting of their homes, for incandescent gas lighting, of which they can afford to use enough to enable a woman to see to sew or her children to see to read without strain on their eyes?"

Long Service.

Later in his Address, the President, referring to the two Companies—the Wandsworth, Wimbledon, and Epsom District Gas Company and the Eastbourne Gas Company—who had combined to act as hosts on the occasion, said that each in its own area had for many years sold gas very cheaply; and responsibility for this position he put down as due in no small degree to the fact that during practically the whole of their histories they have had only four Chairmen—Wandsworth for over 90 years, and Eastbourne for 67 years. If he had been speaking only four years ago, the number of Chairmen would have been three to each Company. But not only in their Chairmen have these Companies had great continuity. In both Companies to-day there are Directors, high officials, and many of the staffs and workmen who have spent most, if not all, of their working lives in the employ of one or other of the Companies.

Some Further Cases.

Further remarkable instances of long service were revealed during the presentations to the Duke and Duchess of York. The first of these presentations was of five long-service workmen in the industry, representing respectively the Gas Light and Coke Company, as the oldest and the largest Gas Company; the Wandsworth and Eastbourne Companies, as the two Companies of which the President is Chairman; and, finally, the Glasgow and Birmingham Corporations, the two largest corporation gas undertakings in the country.

A Reasonable Hope.

When presenting the report and accounts, Mr. F. W. Goodenough, C.B.E. (Executive Chairman of the Association), expressed the hope that the 50 undertakings who do not at present contribute to the funds at the highest rate will join the 800 who do. This should not be an extravagant hope. Universal recognition of any fact takes time to bring about; but it should not require very much longer to convince every gas administrator that all-round benefits should, in common justice, be met by all-round full subscriptions. Each unit of the gas industry is part of a great whole, and should act accordingly.

Striking Propaganda.

If any proof should still be needed—though it is hard to believe that it can be—of the fact that the propaganda work of the industry deserves the whole-hearted support of every undertaking, let us point to last Tuesday's Colour Section of the Printing Number of "The Times," on the first page of which the British Commercial Gas Association show, by means of a picture by Clive Gardiner, how gas is banishing the curtain of smoke that keeps the sunshine from our cities. The whole industry must benefit from such an arresting illustration, which appeals alike to one's sense of beauty and to one's sense of fitness. It would be a strange corner of the country indeed into which this propaganda did not penetrate—or, having penetrated, failed to have good results.

Gas in the Printing Trade.

But that is not all. The back page of the same Colour Section is devoted to an account of the manifold uses of gas in the printing industry, which is illustrated by James Williams for the Gas Light and Coke Company. It is an attractively written story, whose lesson is plain to all who read; while the illustrations leave room for no misunderstanding. Printing operations offer important industrial uses for gas; and all must gain by the broadcasting of the fact by the Gas Light and Coke Company in so convincing a manner. How largely gas is already used in newspaper printing works is to be gathered from another article which appears in the same issue of "The Times."

Romance of the Gas Industry.

And still we have not done with propaganda; for mention has not been made of the beautifully got-up Souvenir of the Royal visit, which, within a cover lettered in gold and bound with blue ribbon, contains portraits of Their Royal Highnesses and an illustrated account of "The Romance of the Gas Industry." Copies of this book, which was designed and published by the British Commercial Gas Association, were handed to those attending the conversazione. It was a telling piece of propaganda work, upon which the "B.C.G.A." are entitled to congratulation. Who can indicate a boundary to the sphere of influence of this beautiful Souvenir, which is worthy of a permanent place on any book-shelf?

A Suggestion.

Mr. Arthur Hayday, M.P., who is Vice-President of the National Union of General and Municipal Workers, and who started work at nine years of age, and subsequently became a trimmer in the stokehold of a tramp steamer, delivered an address in which he emphasized the importance of the gas industry to industrial labour and the worker's home. He was followed with rapt attention; for, from his life's actual experience, he was able to depict gas as the "Fairy Godmother" that has so improved conditions in the working man's home, and so lessened the housework of his wife, as to render them incomparable with those which existed not so many years ago. It was a stirring address, for it pulsated with life, and was on lines which the industry should follow. It was therefore with good reason that Alderman Fred. West suggested to the Council that they should issue the address in pamphlet form, possibly condensed to some extent. He declared that he would like to place it in the hands of every one of his workmen; and he believed others would wish to do the same.

The Sunday Cooking Load.

From a remark during the conference, it appears that the Sunday cooking load is in danger of losing its pride of position as a "peak." The "going-out" habit engendered by the ubiquitous motor-car is likely to interfere more or less with it. The point was made by Mr. C. S. Shapley, who also stated that the travelling showroom is to be used at Leeds.

A Reason for Reduced Consumption.

The effect upon consumption of the increased efficiency of gas-consuming appliances has been on more than one occasion pointed out in these pages; and it was introduced at the conference by Mr. H. D. Madden, who said that the substitution of modern cookers in place of old ones is having a great effect upon the consumption of gas—the result being anything up to 15 p.ct. reduction. The change from the old type of appliance to the new is therefore as good as a reduction in the price of gas. This effect must not be lost sight of when considering the growth of the industry on the basis of output.

Hotel and Boarding House Meters.

It must often occur to those who pause to consider, that the industry may suffer permanent injury if profiteering takes place by landlords of hotels and boarding houses who have slot meters fixed in their bedrooms and sitting-rooms. Mr. Philip G. G. Moon, in his paper, emphasized the desirability of both the gas company and the hotel proprietors looking at the question from a broad point of view, and avoiding charging an excessive price. The matter was taken up in the discussion, and it is one which we hope will not be lost sight of. To the layman, the gas meter represents the gas company; and if he finds a gas fire in a boarding house or hotel unduly expensive, he may, instead of placing the blame upon the landlord, take away with him a lasting impression that gas is too dear.

Progress that Cheers.

Mr. Moon, who is the Engineer and General Manager of the Bournemouth Gas Company, gave a remarkable instance of the increased use of gas there. He stated that the total value of gas cookers, fires, and boilers sold in his area in 1912 amounted to £8806. In 1928 this total had risen to £60,289.

Wiping-Out the Cheap Lamp Accident.

There were many valuable points in the address of Mr. Arthur Hayday, M.P. Here is one of them: The gas-burner has wiped-out the cheap lamp accident. The total deaths from accidents due to the use of gas from all causes is to-day much less than the number by which deaths from lamp accidents have decreased since the slot gas meter became general.

FORTHCOMING ENGAGEMENTS.

[*Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.*]

Nov. 7.—MIDLAND ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—Autumn meeting in Birmingham.

Nov. 7.—GAS COMPANIES' PROTECTION ASSOCIATION.—Annual meeting, Caxton Hall, Westminster, 2.30 p.m.

Nov. 8.—MANCHESTER DISTRICT INSTITUTION OF GAS ENGINEERS.—Special meeting and visit to Smoke Abatement Exhibition.

Nov. 9.—SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).—Joint Meeting with Western District in Glasgow.

Nov. 12.—NATIONAL GAS COUNCIL.—Meeting of Central Executive Board.

Nov. 12.—FEDERATION OF GAS EMPLOYERS.—Meeting of Central Committee.

Nov. 13-14.—INSTITUTION OF GAS ENGINEERS.—General meeting in London.

Nov. 14.—MIDLAND JUNIOR GAS ASSOCIATION.—Meeting in Birmingham. Discussion on the "Relative Advantages of Iron and Lead for Internal Carcassing."

Nov. 16.—SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).—Joint visit with Western District to Granton Works.

Nov. 18-23.—PUBLIC WORKS, ROADS, AND TRANSPORT CONGRESS AND EXHIBITION.—Royal Agricultural Hall, Islington.

Nov. 20.—SOCIETY OF BRITISH GAS INDUSTRIES.—Meeting of Council in the morning.

Nov. 20.—SOCIETY OF BRITISH GAS INDUSTRIES.—Autumn General Meeting, Hotel Metropole.

Nov. 22.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—General meeting at the Hotel Cecil, Strand, W.C., 2.15 p.m.

Nov. 28.—MIDLAND JUNIOR GAS ASSOCIATION.—Visit to Biscuit Factory of Messrs. Alfred Hughes & Sons, Ltd., Birmingham.

PERSONAL.

In a stiff contest at the recent Municipal Elections, Mr. Thomas Glover won in the Eaton Ward of Norwich by a majority of 255. Mr. Glover had been asked by representative Liberals of the Ward to offer himself as a candidate for membership of the City Council; and the seat was taken from the side that had held it for some years. Doubtless it was felt that the offer of so sound a business man as Mr. Glover for public service was too good a one to be allowed to fail. In his address to the electors, Mr. Glover remarked that, during his period of office as Lord Mayor (1925-6), he was deeply impressed by the large amount of responsible work which is done by members of the City Council; and we are glad that the citizens will enjoy his able assistance in carrying on this work.

At the recent Municipal Election for Saint Paul's West Ward, Bedford, Mr. J. B. Hansford, the Engineer and Manager of the Bedford Gas Company, was elected to the Town Council by a majority of 185 votes over the combined votes of his two opponents.

As reported in "The Times" for Nov. 1, Miss Lilian Patricia Edwards, elder daughter of Mr. R. W. Edwards, Managing Director of the Aldershot Gas, Water, and District Lighting Company, has qualified as a doctor. Miss Edwards is quite young and has had a brilliant career, being L.R.C.P. (London) and M.R.C.S. (England), as well as Bachelor of Surgery, London University.

OBITUARY.

It is with great regret that we record the death of Mr. Robert Stephenson, M.A., J.P., D.L., which took place at Burwell on Oct. 27. No man has played a greater part in the public and business life of the Newmarket district and the County of Cambridgeshire. At the early age of 24 he became a Director of the Newmarket Gas Company, and for the last 52 years he had been its Chairman. In that capacity he contributed very largely to the building-up of the prosperous undertaking which the Company now possesses. On the day of the Company's annual meeting in 1926 he was presented with a solid silver inkstand inscribed "Presented to Robert Stephenson, Esq., J.P., D.L., on the completion of 50 years' Chairmanship of the Newmarket Gas Company, 1876-1926—and as a mark of esteem and regard from his co-Directors and the Manager." He also received, on the same occasion, a presentation from the staff.

It is with regret that we have to announce that Mr. C. Chambers Smith (Editor and Director of the "Municipal Engineering and Sanitary Record") passed away suddenly on Thursday last, Oct. 31. Mr. Chambers Smith had not been well lately, though he attended the recent Conference of the Association of Public Lighting Engineers at Bournemouth. The interment took place on Wednesday, Nov. 6, at Finchley Cemetery. The Council of the Association of Public Lighting Engineers was represented at the funeral. Mr. Chambers Smith was one of the Founders of the Association and a member of the Council at its formation and an Hon. Member at the time of his decease.

Mr. Andrew Brown, of Kirkmuirhill, Lanarkshire, Contractor for retort benches and regenerator sittings, died suddenly from pneumonia on Oct. 20. He was well known to all the Scottish gas managers of both small and medium-sized works. His son will continue to carry on the well-established business.

The death has occurred of Mr. George Rowe, J.P., Managing Director of the Upper Forest and Worcester Sheet and Tinplate Works, Morriston. Among his many other business activities, he was a Director of the Swansea Gas Light Company.

It is with much regret that we record the death of Mrs. Marian Francis, wife of Mr. Sydney A. Francis, M.B.E., Gas and Water Engineer to the Clacton Council. With her husband Mrs. Francis had been a resident of Clacton for thirty years, during which time she identified herself with many movements associated with the social and philanthropic life of the town.

GAS STOCK AND SHARE MARKET.

[For Stock and Share List, see later page.]

The Stock Exchange has seldom experienced so many sensational events as occurred last week. The dramatic collapse of the "boom" in Wall Street, in which quotations moved without rhyme or reason, was followed by the unexpected reduction in the Bank Rate and the announcement of the unusual condition in respect of the conversion terms of the 5 p.ct. Conversion Loan issue. Applications for the conversion of the 5 p.ct. War Loan must be accompanied by allotment letters for an equal amount of the new loan, and there is little doubt that the offer will attract an enormous number of applications for the new loan.

At the beginning of the week it looked as if the depressing influences were too much for even the gilt-edged market, and prices began to fall; but even before the Bank Rate decision a reaction took place, and there was a distinct improvement in values.

In the Gas Market, as in other sections, the Exchange holiday reduced the number of the week's transactions, and the movements were mostly on the downward grade. Imperial Continental capital dropped a further 25 points, and the price is gradually becoming more in relation to the dividends paid. Primitiva shares also eased off 2s., but the price (30s.-33s.) is still justified only by the prospect of an increased distribution. The only improvements in ordinary stocks were the rises of 2 points in North Middlesex 6 p.ct. to 112-117, and a further 3d. in Gas Light £1 units to 18s. 9d.-19s. 3d. At the time of writing the result of the Uxbridge, Maidenhead, and Wycombe issue of 5 p.ct. ordinary stock is not known; but if (as expected) applications have been received for the whole £20,000 at or more than the minimum price of £100, the present quotation of 93-98 is well below the true value of the stock.

The following transactions were recorded during the week:

Monday.—Alliance and Dublin 97⅝, 97¾, Bournemouth 7 p.ct. 12½, British 115, 115½, 116, European 12½, 13, 13¼, Gas Light and Coke 18s. 9d., 18s. 10½d., 19s., 19s. 1½d., 19s. 3d., 3½ p.ct. 62½, 4 p.ct. pref. 72, 72½, Imperial Continental 368, 369, 372, 372½, Sheffield 104, South Metropolitan 99¾, 100¼, South Suburban 5 p.ct. 101, Tottenham 104, Wandsworth "B" 114½, 115¼. Supplementary prices, Barnet 5 p.ct. deb. 96, Hornsey 5 p.ct. 110, Tonbridge new 179½.

Tuesday.—Alliance and Dublin 98, British 116, Commercial 93, Croydon sliding-scale 105½, European 11, 12½, Gas Light and Coke 18s. 10½d., 19s., 19s. 1½d., 19s. 3d., 3½ p.ct. 61¼, 4 p.ct. pref. 71½, Imperial Continental 355, 357, 360, 361, 364, 365, 366, 368, 370, Newcastle 3½ p.ct. deb. 67, Sheffield 104¾, South Metropolitan 99½, 99¾, 99⅞, 100¼, South Suburban 5 p.ct. 102, Tottenham 3½ p.ct. 104.

Wednesday.—Alliance and Dublin 97¾, 98, 98¼, Bournemouth "B" 12¾, British 115, 115¾, Croydon sliding-scale 105, 105½, max. div. 80½, European 10, 11½, Gas Light and Coke 18s. 9d., 18s. 10½d., 19s., 19s. 1½d., 3 p.ct. deb. 57½, Imperial Continental 340, 345, 350, 352, 355, 360, Metropolitan (of Melbourne) 5½ p.ct. deb. 95, 95½, Newcastle 3½ p.ct. 16s. 3d., Primitiva 30s., 4 p.ct. cons. deb. 81, South Metropolitan 99, Tottenham 3½ p.ct. 105. Supplementary prices, Liverpool 5 p.ct. deb. 99.

Thursday.—Alliance and Dublin 97¼, Brighton and Hove 6 p.ct. 113½, 115, Bristol 5 p.ct. max. 87, 87½, Commercial 92, 93, 3 p.ct. deb. 55, European 10⅝, 11, 11¼, 11½, 12, Gas Light and Coke 18s. 6d., 18s. 7½d., 18s. 9d., 19s., 3½ p.ct. max. 62, 5 p.ct. deb. 99½, 100, Imperial Continental 340, 348, 349, 350, 352, 353, 354, 355, 356, Montevideo 106, 107, Primitiva 32s. 9d., South Metropolitan 99½, 100, 100⅜, 100½, Tottenham 3½ p.ct. 105½. Supplementary prices, Barnet 5 p.ct. deb. 96, Bath 89¾.

Money was plentiful in the short loan market. At the start the rate for fresh accommodation was 5 p.ct., but eased off to 4½ p.ct., and old loans were renewed at from 4¾ p.ct. down to 4½ p.ct. The lowering of the Bank Rate caused the average rate at which Treasury Bills were allotted to drop to £5 15s. 8·33d., being 3s. 8·32d. p.ct. below the previous week's rate. Applications totalled £105,000,000, which is an exceptional total, and more than twice the usual amount.

The Foreign Exchange Market was quiet at the end of the week. The New York exchange moved in favour of sterling, and closed at 4.88$\frac{3}{32}$; the Paris rate showed a rise of 123.82; Italian lire finished at 93.14; Spanish pesetas at 34.30; German reichsmarks at 20.38¾; Belgas at 34.86¼; and Dutch florins at 12.09.

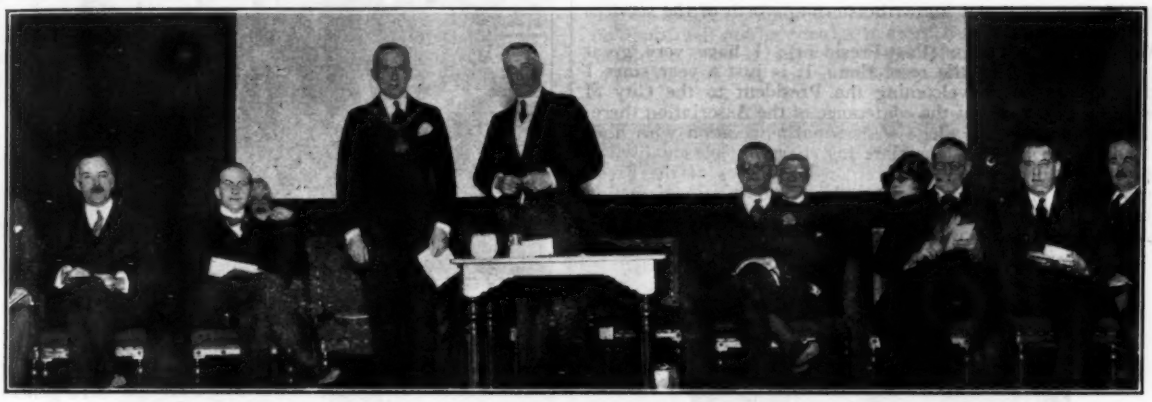
Silver was easier, and the cash price declined to 22$\frac{15}{16}$d. per oz.; while Gold remained unchanged at 84s. 11½d. per oz.

The Bank Rate is 6 p.ct., to which it was reduced from 6½ p.ct. on Oct. 31. The Banks' deposit rate is 4 p.ct., and the deposit rates of the Discount Houses are 4 p.ct. at call and 4¼ p.ct. at notice.

"B.C.G.A." CONFERENCE AT EASTBOURNE.

AN HISTORIC OCCASION.

The visit of Their Royal Highnesses the Duke and Duchess of York to a Conversazione has rendered historical, and the business and social items have made memorable, the Eighteenth Annual General Meeting and Conference of the British Commercial Gas Association, which was held on Monday, Tuesday, and Wednesday of last week at Devonshire Park, Eastbourne, under the Presidency of Mr. FRANK HARDING JONES, M.Inst.C.E., Chairman of the Wandsworth, Wimbledon, and Epsom District Gas Company, and of the Eastbourne Gas Company, who acted as joint hosts on the occasion. A programme such as was carried out represents much hard work for many people; and the fact that everything went without a hitch speaks volumes for the organizing ability of the Association and of the industry. The President himself has every justification for feeling, as we have no doubt he does feel, both pleasure and pride at the unqualified success of the meeting.



THE MAYOR OF EASTBOURNE WELCOMES THE CONFERENCE.

RECEPTION AND LECTURE.

There was a large assembly in the Winter Garden, Devonshire Park, on the Monday evening, when the Mayor (Lieut.-Col. Roland Gwynne) gave a reception. The guests were received by the Deputy-Mayor (Councillor Miss Hudson), in the unavoidable absence of the Mayor; and with her were the President and Mrs. Frank Jones. The Eastbourne Municipal Orchestra, under Captain H. G. Amers, rendered a pleasing programme of music; and the Misses Elsie and Doris Waters provided an entertainment of humour and harmony.

SUNLIGHT AND HEALTH.

Dr. C. W. SALEEBY, F.R.S. (Edinburgh), gave a lecture on "Sunlight and Health," which was illustrated by lantern slides; and in the course of his remarks, he voiced the belief that the chief way in which more sunlight can be obtained is through the strengthening of the smoke abatement laws. He considers that the Public Health (Smoke Abatement) Act, 1926, was not sufficiently wide in its scope. He made efforts during the reign of Mr. Neville Chamberlain at the Ministry of Health to get a clause inserted in the Act empowering local authorities, if they will, to require the installation of smokeless equipment in new houses in their area. Mr. Chamberlain declined to consider even new domestic chimneys. Dr. Saleeby hopes that Mr. Chamberlain's Labour successor, Mr. Arthur Greenwood, will be more amenable to his suggestion, and thereby take an important step in guarding the welfare of the public. Dr. Saleeby stressed the fact that the gas industry, because it obviates smoky fuels, and gives in their place clean, smokeless gas fires, is doing a great public service, and helping to attain his ideal of a smokeless Britain. He praised in warm measures the efforts of Mr. George Lansbury, to provide Hyde Park and other parks with ample facilities for sun bathing. He sees in this new departure a means of giving the people of London the same advantages that can be obtained at seaside resorts, at a much lower cost.

OPENING OF THE BUSINESS PROCEEDINGS.

The Conference met on Tuesday morning, Oct. 29, in the Pavilion, Devonshire Park.

The PRESIDENT, in opening the conference, said: We are particularly honoured this morning because His Worship the Mayor of Eastbourne (Councillor Lieut.-Col. Roland Gwynne, D.S.O., D.L., J.P.) has kindly come to welcome us to Eastbourne.

The MAYOR: I must first apologise for not having been able to receive you last night. I should not like you to think, however, that because I was unable to be present I did not feel honoured that you should have selected Eastbourne in which to hold your conference. We are specially honoured by the conference of the British Commercial Gas Association being held here this year because your President comes from a very distinguished family. I believe he is the third of a line which is very distinguished in the gas industry, and he also is Chairman of the Eastbourne Gas Company. I am also glad to think that your conference coincides with the visit of Their Royal Highnesses the Duke and Duchess of York to Eastbourne. Indeed, we feel that we partly owe their visit here to you, because I think it is owing to the immense amount of interest that Their Royal Highnesses take in your Association that they have decided to pay us a visit. I trust that your deliberations will meet with the greatest possible success, for I know that they are being closely watched not only by your Association, but in other parts of the country, and even the world, for at no time has gas been a more important national asset than at the present moment.

The PRESIDENT: Without taking up any more time at the moment, I will, on your behalf, express our thanks to the Corporation and everybody connected with it for the very great hospitality and kindness that they are extending to us.

GREETINGS FROM AMERICA.

The PRESIDENT: A few years ago I was elected an Hon. Member of the American Gas Association, and I have had a charming telegram from them this morning, as follows: "President, British Commercial Gas Association. Best wishes for most successful annual conference.—American Gas Association. B. J. Mullaney, President, Alexander Forward, Managing Director." I propose, with your permission, to send a suitable reply to that telegram.

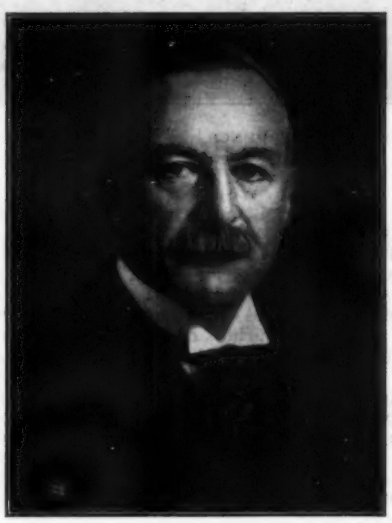
PRESIDENTIAL ADDRESS.

The PRESIDENT then delivered his Address. This was published in the "JOURNAL" last week.

Alderman F. S. PHILLIPS: I have a very pleasant task to perform, and I also have the satisfaction of knowing that, whether I discharge that duty well or not, you will receive it enthusiastically without any regard to shortcomings on my part. My duty is to propose that we give our very best thanks to the President for his services during the past year, for his Address this morning, and for the encouragement he has given us and the deep interest he takes in the gas industry. Gas is not going, despite competition, which is getting increasingly keen. Gas has a great work to do; and our task is not simply that of endeavouring to make profits on the sale of gas and the other commodities associated with it, but a much grander and nobler thing. It is endeavouring to remove from our country the reproach that we have the dirtiest atmosphere in the world. We are endeavouring to purify the atmosphere and help to

make the people more healthy. Speaking as an old man myself, I know the effect of fogs. I know how dangerous they are both to the young and to the old, and I can conceive no higher task than that of endeavouring to purify the atmosphere. I was present at the inception of the "B.C.G.A.," and I then came in contact with Mr. Goodenough for the first time, and learned to know him. I now have a very high regard for the steady work he has done during the whole eighteen years the Association has been in existence, and I am also cheered by the fact—as no doubt you are—that the sphere of influence of the "B.C.G.A." is constantly widening, to the very great advantage of the gas industry, of the consumers of gas, and of the people whom it serves. The establishment of Salesmen's Circles has been a step in the right direction, and, as the President has indicated to us this morning, a most useful one which was badly needed and which will give us ample returns in results. The President has his heart and soul in the gas industry which he has served so well; he believes in it, and has done good service for the "B.C.G.A." I have the advantage occasionally of meeting the President both on the National Gas Council and in connection with the "B.C.G.A.," and of working with him, so that I know the sterling worth of the services he is giving to us.

Mr. Alfred Procter (Past-President): I have very great pleasure in seconding the resolution. It is just a year since I had the pleasure of welcoming the President to the City of York on the occasion of the conference of the Association there, and I have had the privilege of personal association with him, and have been able to appreciate his charming personality. I had to hand over to him the responsible duties of the Presidential Chair on that occasion, but I had the great satisfaction of knowing that I was handing over those responsibilities and duties to one who knew the subject thoroughly, and who was



MR. HENRY WOODALL.

Mr. Henry Woodall, M.Inst.C.E., is Deputy-Governor of the Gas Light and Coke Company, Chairman and Managing Director of the British Gas Light Company, Ltd., Chairman and Managing Director of the Ipswich Gas Light Company, and Director of several other undertakings. In January, 1886, he went to Australia with his uncle, Mr. Henry Woodall, and designed gas-works there. Later he went to South Africa, where he designed, built, and managed gas-works. Among the clients of his firm (Corbet Woodall & Son, Consulting Engineers) was the Imperial Continental Gas Association, for whom and for others he designed gas-works in many of the capitals of Europe and other parts of the world. Mr. Woodall has been a Justice of the Peace for the County of Kent for nearly twenty years, and has always taken a very active interest in the local activities of the county.

thoroughly capable of shouldering the burden. I am sure that everyone here will agree that this morning the President has given us a very complete and attractive picture of our industry as it is to-day. The Association is fortunate in having so capable a leader as Mr. Jones.

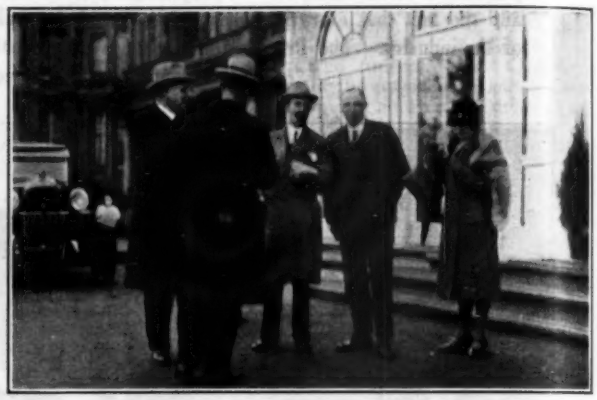
The President: Thank you very much for that vote of thanks. Alderman Phillips has supported the Association from its inception, and he has been a great asset to the gas industry; and I would like to say that I agree with him as to the future of gas.

The New President.

The ballot was unanimously in favour of the election of Mr. Henry Woodall as President of the Association for the ensuing year, and Messrs. Cash, Stone, & Co. as auditors.

The President: I would like to welcome Mr. Henry Woodall to this Chair. He is an old friend of mine, and there is nobody in the gas industry who will do work better than he.

Mr. Henry Woodall: I thank you very much indeed for the honour you have done me in electing me your President. When I look down the list of illustrious names of your past Presidents I am astonished at my temerity in accepting the position. I think, however, that I have one recommendation which I am sure affected your choice, and that is that I am a son of my father, who was President at your first conference held in Manchester in 1912. It has been said of someone that he showed great wisdom in the choice of his father, and of nobody can that be said more truly than of myself. But privileges of this sort also have obligations; and by your decision



to-day you have imposed upon me both the privileges and the obligations. Mr. Jones has told you that he is the third of his generation of gas people. Both of us are the third generation of gas engineers and administrators; we both have sons who are preparing to follow us; and we both also have grandsons. My grandson, whose name is Corbet Woodall, is already learning to lisp the praises of his gas fire suitably supplied by the Gas Light and Coke Company, which adds very considerably to his pleasure and comfort. I am very proud to belong to it, and I have very great pleasure in doing anything I possibly can to help those who, like the "B.C.G.A.," do so much to further its welfare and prosperity. I have heard a rumour that it is possible that the "B.C.G.A." would like to hold the next Annual Conference in Hull; and I am only too pleased to say that it will be a very great pleasure to my Company, the British Gas Light Company, to welcome you there if you finally decide to visit that town.

Education in Industry and Commerce.

The President then asked Lord Eustace Percy, M.P. (Past-President of the Board of Education), to give an Address on this subject.

Lord Eustace Percy said: It is a great honour to be given the duty of delivering an address on education in industry and commerce to this Association, and I would only say at the outset that I hope you will excuse me if a great deal of my Address may not seem to be directly related to the problems of your industry. When we are considering the great extension and improvement of education, such as your President has referred to, for salesmanship or any other branch of industry, it is necessary that every industrial association should consider the problems not only as, of course, it must do from its own

point of view, and its own needs, but also co-operatively from the point of view of commerce and industry generally.

He then read his Address, which appears elsewhere in this issue.

Mr. GOODENOUGH: I have the privilege of proposing a vote of thanks to Lord Eustace Percy for his exceedingly interesting address. We gratefully appreciate that a very busy man such as he is—an ex-Minister of the Crown—should spare the time to come here and make a really important pronouncement on the subject of education. He seemed to apologise at the beginning of his address for dealing with the subject of education on rather wider lines than those that might strictly interest us in the gas industry; but gas administrators have a very sound reputation for taking wide views on public questions connected directly or indirectly with the industry, and they regard it as a compliment to their wide social and public interests that Lord Eustace Percy should have spoken to them on the lines he has taken this morning. I am sure we all greatly appreciate the compliment that he has paid us. The address follows very aptly upon the address of our President this morning and his reference to the subject of education and our problem of staff recruitment. That is a problem which this industry has to face very seriously and actively in the near future, if it is to maintain and increase its position in the economic world. I came across a phrase the other day which, with one adaptation, we could apply to ourselves. "The race that does not value trained intelligence is doomed." I think we can say in these days that "an industry which does not value trained intelligence is doomed;" and we, if we are not to fall back—as we do not mean to fall back—in the competition of to-day, have to consider and to act quickly in regard to this problem of staff recruitment. It is to my mind the responsibility of employers to deal with this question of education of staff. Some employers—and I am proud to say many employers in the gas industry, but not too many of them—do give encouragement to their men to go on with their general, as well as their special, education after they have left school, and even while they are at school, because they know that there are opportunities waiting for them in the industry. That is the responsibility of the employer to-day—to see that his employees are given full encouragement to go on with their general education and also with their special education. It was because of his recognition of the fact that employers have got to take the initiative in this matter that Lord Eustace Percy, when he set up the Committee to deal with the subject, selected business men rather than educationalists. He has put upon industry and commerce the responsibility of thinking out the subject for themselves, and of advising the educationalists as to the course they should follow. I do ask the industry to take heed of the words in our President's address this morning as to the importance of securing for the industry the right type of man and woman, the right type of brains and character, and of being prepared to pay for them—because, if they are not prepared to pay for them, they will never get them. It is of the greatest importance to the industry that the level of intelligent attainment of our staffs engaged alike on the commercial and technical sides of the industry shall rise steadily in the future. I have the very greatest pleasure in proposing that our warmest thanks be given to Lord Eustace Percy for his address this morning.

Alderman J. H. LLOYD (Birmingham): I have great pleasure in rising to second the motion which has been so ably proposed by Mr. Goodenough, and I should like to associate myself with everything he has said. We know how much he does for the industry not only in the ordinary work of the "B.C.G.A.," but also in connection with this question of education for the future leaders of our industry. I am grateful to him for the work that he does. In the early part of Lord Eustace Percy's very interesting address, he referred to the difficulty of choosing a language for boys and girls to take up. I am sure that most of us have suffered at school in trying to learn several languages, and later, if we have travelled about the world, we have again and again felt the need of languages and the ignominy of not being able to speak the language of the country we were in. There is, however, one solution which I have no doubt will not be popular to Lord Eustace Percy—that there should be a world language, Esperanto.

The motion was carried with applause.

Lord EUSTACE PERCY: I always found, during the 4½ years I was in office, that this Association stands out pre-eminently as an Association of business men who really do take an intelligent and stimulating interest in education. I will not take up Alderman Lloyd's challenge about Esperanto, though I am afraid that my feelings about it are much like my feelings about Spanish. I thank you very much.

KNOWLEDGE OF CRAFT AND TECHNIQUE AS AN AID TO SALESMANSHIP.

Sir LAWRENCE WEAVER then delivered an address on this subject. Regretfully we are compelled to postpone publication of this address until the next issue of the "JOURNAL."

Mr. A. W. SMITH: I have the greatest pleasure in moving a hearty vote of thanks to Sir Lawrence Weaver for his very interesting address.

Mr. C. M. CROFT: I have the greatest pleasure in seconding the proposal.

VISIT OF THE DUKE AND DUCHESS OF YORK.

In the afternoon there was a crowded attendance in the Floral Hall, to take part in a conversazione, at which Their Royal Highnesses the Duke and Duchess of York had graciously consented to be present. Before they arrived, there was music; and the following short informal address was delivered by Mr. F. W. Goodenough, C.B.E., the Executive

Chairman of the Association. Professor Arthur Smithells was to have occupied this position; but unfortunately he had been ordered by his doctor not to attend.

An Address by Mr. Goodenough.

Mr. Goodenough, in his address, said: The proposition we are seeking to demonstrate in this conference is rather like a proposition in Euclid. We want to put Q.E.D. at the end of the proposition that the basis of the relations between a gas undertaking and its consumers is a perfect square—that is to say, it is a square deal of which the four sides are quantity, quality, price, and profit, that the consumer gets the quantity he pays for and the quality the undertaking contracts to give him at a price that ensures a reasonable profit to the undertaking. We hope to give proof later in the afternoon, when we are to have some short lectures, with regard to quality and quantity; but with regard to price and profit, I can say that, if every household commodity were supplied upon the terms that gas is supplied to the public to-day, the word "profiteering" would never have got into the vocabulary of the British people. I expect most of you are aware—though it is surprising how many are not—that in the case of most gas companies no increase can be made in the dividend distributed to the shareholders except as a consequence of a reduction in price to the consumer. At one time companies were governed by a law which provided for a maximum price that could not be exceeded and a maximum dividend that could not be exceeded, but this did not provide any encouragement for economy in working, and it was also completely upset by the Franco-Prussian War of 1870-71, which sent prices up to such an extent that gas companies were in the position of having to supply at a price which did not even make the two ends meet, apart entirely from any profit. Then a great gas administrator, the late Sir George Livesey—Chairman of the Company of which our President to-day is Vice-Chairman—namely, the South Metropolitan Gas Company—suggested to Parliament the adoption of the sliding-scale, which allows a company to go on increasing its dividends above a certain standard figure so long as it goes on reducing the price of gas below a standard figure, so that the Company and the consumer (and co-partners) benefit.

In regard to the question of quantity, I am sorry to destroy one of the favourite jokes of the comic papers. It is a fact that the gas meter is one of the most reliable pieces of mechanism that was ever invented. The gas meter, on the average, registers in favour of the consumer rather than of the undertaking. That might sound strange to people who are only accustomed to looking at gas bills and do not know the facts that lie behind them. The gas meter is an independent witness tested by an independent authority, and placed between the consumer and the company to be an unbiased witness between the two. Moreover, the gas legislation which provides for testing meters, provides a balance in favour of the consumer.

You sometimes find a meter with the index figures exactly the same at the end of a quarter as they were at the beginning; and then comes a pleasant discussion with the consumer as to how much he ought to pay, as an estimate, in respect of the consumption for the three months during which the meter has failed to register. You may take it as an invariable rule that the past three months has always been a period during which the consumer is certain that he used less gas, because he had either been away or had had fewer visitors, or some such reason; and in order to arrive at a friendly settlement with the consumer we generally have to agree to accept about 75 p.ct. of what we really think is the correct figure. When the meter goes on working properly again, we invariably find that the peculiar circumstances which the consumer had alleged in favour of a small registration during the particular three months have mysteriously disappeared. The result is that the gas companies very rarely get paid for more than about 95 p.ct. of the gas that is registered by the station meters; and I think this is a very good answer which destroys the legend of the supposed lying of the gas meter.

The reason why I think the gas meter is doubted very much is because the consumer has to rely on memory while the gas meter relies on observation. Moreover, the consumer cannot

Miss Rosemary Croft,
who presented a bouquet to the Duchess of York.

possibly observe all the gas that is used by every member of the family or by visitors, and also by reason of the actions of those very rarely economical persons the servants. If you would only look at your meters every week, and keep a record of them, in the same way that you watch your grocers' bill or butchers' bill, the life of the gas companies would be very much happier and you would be much more contented.

ARRIVAL OF THE DUKE AND DUCHESS.

Shortly after the completion of the address, the Duke and Duchess arrived at the entrance to the Floral Hall, accompanied by the Mayor of Eastbourne, and attended by Lady Annaly and Mr. Patrick Hodgson, C.M.G. They were received by the President and Mrs. Jones and Mr. and Mrs. Goodenough. When the party had proceeded through the hall to the platform, Miss Rosemary Croft had the honour of presenting a bouquet to the Duchess.

PRESIDENT'S ADDRESS OF WELCOME.

The PRESIDENT, in welcoming Their Royal Highnesses, said: Your Royal Highnesses, on behalf of the British Commercial Gas Association, and of the 800 gas undertakings which it represents—from Aberdeen to Penzance and from Cork to Dover—I respectfully tender to you the most cordial and loyal of welcomes to our conference. We thank you very heartily for giving us this further evidence of the close interest you take in all that concerns the commercial and industrial welfare of our country, and especially in all that affects the personal welfare of the workers. In common with our fellow-subjects in other industries, we appreciate warmly the whole-hearted devotion of yourself, Sir, and of your much-loved Consort, to the development of industrial welfare, with which your names are associated in all our minds. We have rejoiced also to notice the keen interest you have shown in the movement for more efficient salesmanship, in which this Association may, I think, fairly claim to be one of the pioneers, and which we believe to be of pressing importance to our national prosperity.

We are glad to be able to tell you of the good relations that

MR. FRANK H. JONES, M.Inst.C.E.

MR. C. M. CROFT.

exist between employers and employed throughout the gas industry; to recall the many co-partnership, pension, sickness, holiday-with-pay, and many other schemes that have been established; and to point to the many workers who have spent long lives of happy service in our employment—of whom I will ask your leave to present to you some typical representatives this afternoon. And we are proud to be able to say that the extended use of gas has driven dirt and drudgery out of millions of workers' homes, and brought in good cookery and comfort by means of the slot meter; gas has vastly improved working conditions in thousands of factories; and, by greatly diminishing the smoke cloud over our towns and cities, has improved the health and brightened the lives of millions.

We are delighted and proud to have for our great encouragement in this varied work of national service the evidence of interest and approval which your Royal Highnesses have given so graciously by your presence among us this afternoon, and we thank you for it with our whole hearts, and may our thanks be also tendered through your Royal Highnesses to your daughter, Princess Elizabeth, whom we all so loyally admire for sparing you to come to us this afternoon.

At the conclusion of his address, the President asked Their Royal Highnesses if they would graciously accept a copy of that day's "Times," which had a certain coloured print in it, he said, which showed some advantages that gas had brought into many industries, and he also asked them to accept at the same time souvenir copies of the Conference Proceedings that were taking place in Eastbourne.

THE DUKE'S REPLY.

His ROYAL HIGHNESS THE DUKE OF YORK, acknowledging the welcome that had been given to him and the Duchess, said: I thank you on behalf of the Duchess and myself for the very kind words of welcome you have used on our arrival here this afternoon. I should like to thank you very much for your kind welcome. We are very glad to have this opportunity of

meeting so many representatives of an organization which aims at helping employers and employees and the public alike. I am afraid our visit will have to be a short one; and so I will end by wishing this conference all success.

Three hearty cheers were then given for the Duke and Duchess and one more for Princess Elizabeth.

Presentations.

Their Royal Highnesses then proceeded to the floor of the hall, when presentations were made. The list prepared for this was as follows:

Long Service Employees in the Gas Industry.

Charles Clifford Tansley, signal fitter, aged 64 years; 51 years' service with the Gas Light and Coke Company. Two other brothers have an equal record of service, and altogether members of the Tansley family have served the Company for an aggregate of 393 years.

Fred William Willsher, chief valve room attendant; 48 years' service with the Wandsworth Gas Company. He has lost time with the Company on one occasion only, when he contracted pneumonia through doing emergency work at night. During the war period he worked without taking an hour off—that is to say, he forfeited his annual holiday and all other usual holidays. He has never lost a minute of time, except for the period of illness mentioned.

Edwin Funnell, senior exhauster attendant; 39 years in the service of the Eastbourne Gas Company. He is 70 years of age, and has an exemplary record.

George Spicer, who has just retired from the position of works valveman, at the age of 73, after 51 years' service with the City of Birmingham Corporation Gas Department.

Hugh Boyd, top operator on vertical retorts. He has been 49 years in the service of the Corporation of Glasgow Gas Department, and has only been off duty six days during that period, due to an accident while performing his duties.

The President-Elect.

Mr. Henry Woodall, M.Inst.C.E., and Mrs. Woodall.

The French Delegation.

Le Vice-Président de la Commission de Vulgarisation de l'Association Technique de l'Industrie du Gaz en France—M. Auguste Sellié.
Le Secrétaire-Général de la Société pour le Développement de l'Industrie du Gaz en France—M. Marc Dubu.
L'Ingénieur-en-Chef du Service Commercial de la Société du Gaz de Paris—M. Emile Simor St. Just.
Le Secrétaire-Général de l'Association Technique de l'Industrie du Gaz en France—M. Pierre Mougin.

The President of The National Gas Council of Great Britain and Ireland and Past-President of the Association.

Sir David Milne-Watson, D.L., LL.D.

Past-Presidents of the Association.

Sir Hallewell Rogers, J.P., and Lady Rogers.
Sir George E. Davies, J.P., and Lady Davies.
Alderman J. H. Lloyd, M.A.
Sir H. W. Russell Bencraft, J.P., M.R.C.S.E.
Mr. Alfred Procter.

First Vice-President of the Association.

Mr. C. S. Shapley (President of the Institution of Gas Engineers) and Mrs. Shapley.

Vice-Presidents.

Alderman Sir Albert Ball, J.P. (Nottingham).
Mr. Charles F. Botley, M.Inst.C.E. (Hastings).
Councillor Charles J. Bowers, J.P. (Stoke-on-Trent).
Councillor H. Carver, J.P. (Leicester).
Councillor George Catto, Junr., and Mrs. Catto (Aberdeen).
Alderman George Clark, J.P., M.I.Mech.E. (Chesterfield).
Councillor E. J. Clarke (Leeds).
Mr. George Clarry, F.C.I.S., and Mrs. Clarry.
Alderman W. J. Crookes (Doncaster).
Mr. John E. Daw (Exeter).
Sir Arthur Duckham, K.C.B., G.B.E.
Councillor Angus M. Gregorson (Edinburgh).
Councillor E. Hamer and Mrs. Hamer (Blackburn).
Alderman Stanley Hayward, J.P. (Reading).
Councillor Joseph Holt (Coventry).
Dr. Thomas Ives Howell (Wandsworth).
Councillor A. A. Leslie, J.P. (Dundee).
Councillor Robert J. McBeath, J.P., and Mrs. McBeath (Stretford).
Alderman C. W. Pinkney, J.P. (Smethwick).
Alderman F. S. Phillips, J.P. (Salford).
Alderman F. Pollard, J.P. (Oldham).
Mr. Reginald M. Rowe and Mrs. Rowe (Ilfracombe).
Sir Charles and Lady Starmer (Darlington).
Mr. W. Lees Stenning, M.B.E., J.P., and Mrs. Stenning (East Surrey).
Mr. H. M. Thornton, J.P., and Mrs. Thornton.
Alderman J. H. Waddington, J.P. (Halifax).
Alderman G. Walker and Mrs. Walker (Bradford).
Alderman F. J. West, C.B.E., M.I.Mech.E. (Manchester).
Mr. W. E. Whyte (Lanark).
Alderman R. J. Young, J.P. (Stafford).

Representative Labour Members of the Joint Industrial Council for the Gas Industry.

Mr. Will Thorne, J.P., M.P.
Mr. Arthur Hayday, M.P., and Mrs. Hayday.
Mr. P. J. Tevenan and Mrs. Tevenan.
Councillor J. Williams, J.P.
Alderman W. Devenay and Mrs. Devenay.

Speakers at the Conference.

Mr. C. M. Croft and Mrs. Croft.
Mr. Philip G. G. Moon and Mrs. Moon.
Sir Lawrence Weaver, K.B.E., and Lady Weaver.

Executive Committee and Officers.

Mr. W. J. Sandeman (Vice-Chairman).
Mr. A. W. Smith (Vice-Chairman) and Mrs. Smith.
Mr. J. W. Auchterlonie and Mrs. Auchterlonie.
Mr. W. H. Bennett and Mrs. Bennett.
Mrs. M. A. Cloudesley Brereton.
Mr. C. A. Goodall and Mrs. Goodall.
Mr. R. B. Hodgson, M.Inst.Mech.E., and Mrs. Hodgson.
Mr. J. R. H. Jacobs, F.C.I.S., and Mrs. Jacobs.
Alderman Sir Wm. Kay, J.P.
Mr. H. D. Madden, M.Inst.C.E.
Mr. W. M. Mason and Mrs. Mason.
Mr. W. McDowall.
Mr. J. W. McLusky and Mrs. McLusky.
Mr. R. J. Milbourne, J.P., and Mrs. Milbourne.
Mr. Hubert Pooley.
Mr. W. E. Price, Assoc.M.Inst.C.E.
Mr. T. P. Ridley, F.C.I.S.
Mr. H. C. Smith, M.Inst.C.E., and Mrs. Smith.
Mr. J. D. Smith, M.Inst.C.E.
Mr. J. Sandon Stubbs, F.C.I.S.
Bailie J. Walker, M.P.
Mr. J. C. Walker and Mrs. Walker.
Mr. R. Watson.
Mr. W. N. Westlake and Mrs. Westlake.

After the Royal visitors had left, and tea had been served, other informal lectures were delivered to interested audiences in the Pavilion, by Mr. A. W. Smith (one of the Vice-Chairmen of the Association) and Mr. J. G. Clark (of the Gas Light and Coke Company).

Mr. Clark's address took the form of a series of interesting demonstrations, with the aid of apparatus. Next week's "Gas Salesman" will contain the address by Mr. Smith.

DINNER WITH THE GAS COMPANIES.

In the evening, on the invitation of the Chairman and Directors of the Wandsworth, Wimbledon, and Epsom District Gas Company and the Eastbourne Gas Company, those attending the conference, and a number of other guests, dined in the Grand Hotel and the Cavendish Hotel—there being no banquetting hall in Eastbourne sufficiently large to accommodate all who had accepted the invitation. A thoroughly enjoyable evening was spent by both parties; some notable speeches being interspersed with excellent entertainment programmes. An account of the speeches at the two hotels follows.

Grand Hotel.

The Loyal Toasts having been honoured at the call of the Chairman (Mr. Frank Jones), he announced that the following telegram had been dispatched to His Majesty:

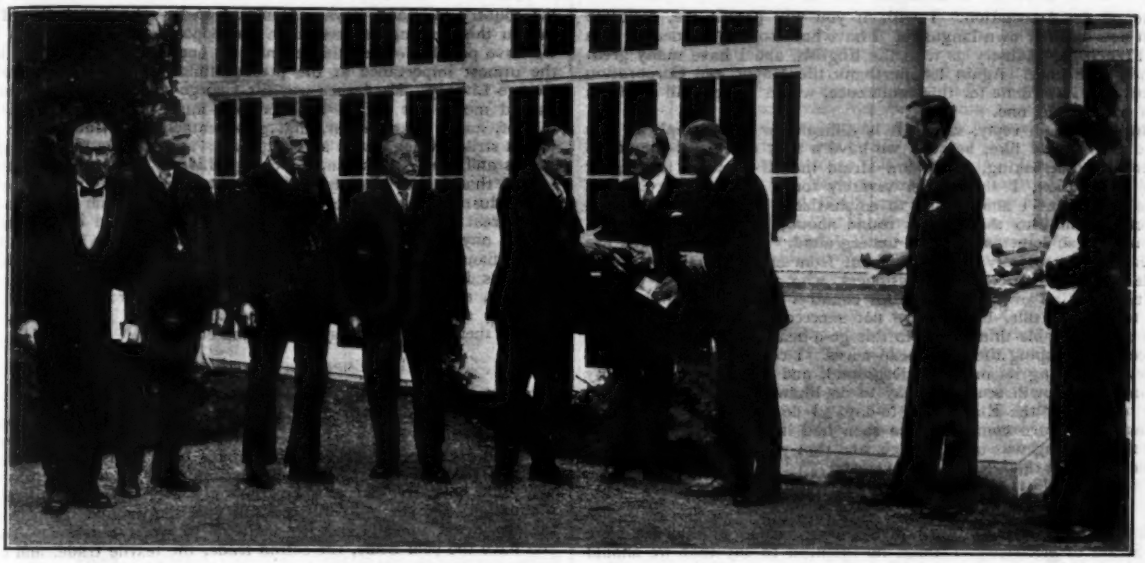
> The President, Vice-President, members and guests of the British Commercial Gas Association assembled at their Annual Dinner tender their most loyal greetings to His Majesty the King and express their heart-felt thanks at his return to health. They join fervently in the prayer that he may live long to reign over us.

The following reply was received from His Majesty the King:

> The King sincerely thanks the members and guests of the British Commercial Gas Association for their kind loyal assurance. His Majesty is glad to know that the Duke and Duchess of York are visiting them to-day and trusts that every success may attend the Conference.

Mr. Will Thorne on the Gas Industry

Mr. Will Thorne, M.P., proposing the toast of "The Gas Industry," said: A few minutes ago you drank the health of the King; and I, like yourselves, am exceedingly sorry that for a long time the King has been in very bad health. I am hoping he will have a permanent and speedy recovery, because, whatever anybody may say to the contrary, I think he is one of the best Kings that has ever sat on the throne. I must say, as I have said many times before, that we are living in one of the freest countries imaginable. As long as people keep a civil tongue in their heads, no one will interfere with them. That cannot be said of any other country in the world, so far as I know, and I have had a good deal of experience. I understand that I have to propose the toast of the gas industry, coupled with the name of Sir David Milne-Watson. Had the gas industry of this country not been in charge of enlightened men, it would not have developed in the way it had done. I myself have come in personal contact with a large number of gas engineers who are seated here. I have met some good ones, I have met some bad ones, and I have met some "devils." [Laughter.] I have tried to meet some who have banged the door in my face. Those days have gone by for all time; and I am very happy to say that, so far as the gas industry is concerned, it has developed greatly during the last thirty years. I can take my mind back more than fifty years. It was at Saltley, in about 1875, that I first carbonized coal, when Mr. Chamberlain was Lord Mayor of Birmingham. There have been many changes since then in the matter of the carbonizing of coal. Those who were connected with the gas industry at the date I mention, will remember that they were very lucky if they got 10,000 c.ft. out of a ton of coal. The other day I was at Birmingham looking at some of the latest type of vertical retorts there; and I found they were getting as much as 17,000 c.ft. from a ton of coal—that is, very nearly twice the amount of the old days—with half the number of men. I think you have nothing to fear from electricity. It is quite true that electricity is developing in all parts



IN HONOUR OF 238 YEARS' SERVICE.

of the country, in consequence of the schemes for super-stations; but I do not think it will hamper the gas industry in the slightest degree. What I should like to see would be gas stoves and gas fires in every home, with electricity for illuminating purposes. I should like to see the ideals of Dr. Saleeby realized; but I am afraid it will be a long time before everything he has set before us comes fully into operation. When we talk about doing away with the raw coal fire, we must remember the men who are employed in the coal industry; but it is perfectly evident that if the coal fire is replaced by a gas fire, more coal will have to be carbonized at the gas-works, and therefore I cannot see how it would do away with work in the colliery districts. The gas industry provides a large amount of employment, on the works, on the district, and at the collieries. So long as you develop your side of the industry, the workmen whom I represent will gain, because there will be an increase in employment, and we shall increase our membership. I have endeavoured to persuade gas engineers to give a hint to their employees that they ought to be members of our organization. Recently there has been no trouble in the gas industry. The Joint Industrial Council was set up in 1919. We have had only one Chairman—Sir David Milne-Watson—and I have been Vice-Chairman. We discuss our various problems, and I do not think we have had any quarrel all the time. It has been beneficial to both employers and workers; and I hope the time will arrive when there will be as good an understanding in other branches of industry as we have reached in the gas industry. [Applause.] I worked under Sir Corbet Woodall when I was at Beckton in the old days, when the hours were very long. Although the hours of labour have since been reduced, and the wages have been increased, the dividends, I think, have also been raised. Recently some letters have appeared in the Press over my name, on the subject of British tar for British roads. It is our duty to do what we can to build-up British industries, and that is why we are going to fight for British tar on British roads. In the latter part of the session, prior to the dissolution of Parliament, the gas industry introduced a small Bill, and Mr. Hayday and I played an important part in getting that Bill passed. I think it will be the means of saving the gas undertakings a good deal of money. So we have helped in that way. I am very pleased to learn, too, that the Institution of Gas Engineers have obtained their Charter. I do not want to claim much credit for having had a hand in that. I promised I would do what I could to help them; and Members of Parliament know many Privy Councillors. It is the privilege of the Councillors to grant these Charters; and I sent letters to various men, who promised that, when the application was made, they would do what they could to see that the Charter was granted. You and I are working together, and I hope that in the near future the gas industry will show even greater development than it has done in the days gone by.

In Closest Amity.

Sir DAVID MILNE-WATSON, D.L., LL.D.: I rise with great pleasure to return thanks on behalf of the gas industry for the way in which Mr. Will Thorne, our friend, has proposed our prosperity and health. It is a signal mark of the position in which the industry finds itself, that we have Mr. Thorne here to pour out his inspiring blessing upon the gas industry. There were days, not so far distant, when we did not always see eye to eye. There were difficulties, and sometimes hard things were said. But we have forgotten all that. Mr. Will Thorne and I have worked together as Chairman and Vice-Chairman respectively of the Joint Industrial Council since 1919, in closest amity. I consider it a great honour to the British gas industry that we have here to-night the representative on the workers' side, in Mr. Will Thorne, accompanied by his friend and our friend Mr. Hayday, both of whom have spent so much of their lives in the gas industry. Such a thing would have been inconceivable a few years ago. The services Mr. Thorne has rendered have been inestimable. He and his friends have done everything they could to support the industry fully. Of course, we cannot expect that they will support us in all our propositions; but they have rendered us many services in the House of Commons, and I and my colleagues are deeply thankful to them for all they have done. [Applause.] We may even expect them to do a little more. There is not only gas; tar and other things have also to be looked after. We are opposed to-day in all manner of ways. We have troubles with sulphate of ammonia, troubles with tar, and troubles with coke; and it is sometimes hard to see our way. There is, however, probably a better feeling to-day in the gas industry and allied industries than ever before; and I hope very soon we shall be joined in a way which will make us brothers in the carbonizing industry in which we are all engaged.

A Great Day.

To-day is a great day in the history of the gas industry. We have been honoured by the presence of the Duke and Duchess of York—an honour which we very highly esteem. But it is not the first time that the Royal Family have shown their interest in our industry. It is not long since the King and Queen came to Beckton, to inaugurate our coal unloading plant. It is also not long since the Duchess of York opened our showrooms at Kensington; while the Duke has paid a private visit to Beckton. Thus they do pay great attention to our progress. Now, wherever we look, we seem to be surrounded by critics; but I do not feel discouraged. I regard it as a compliment, because it is a clear indication that we are such a successful industry that other people are envious. During the last five years we have made more progress than in the twenty years which preceded them, and that in face of more strenuous opposition than ever before. I believe that if we continue to do our duty, and give good service to the public, we shall go on increasing in importance and efficiency. Personally, I enjoy the struggle. I do not sigh for the pre-war days when life was easy. Competition keeps one fit; and I am sure you all feel with me that things are happier at present, with a struggle, than in the days when we had little to do and had the whole field to ourselves. This year we have obtained a Royal Charter for the Institution, of which we are particularly proud; and I am very pleased to see here Mr. Shapley, who is President of that organization. Anything that improves the status of the engineer is a matter for congratulation, and will lead to our greater efficiency and greater power of holding our own with the scientific development of our industry. There are many institutions connected with the gas industry, but to-day we are concerned with the meeting of the British Commercial Gas Association, and there never was a body which did its work better. It is thorough, it is persuasive, and you will see from to-day's "Times" how up-to-date it is. In this illustrated supplement to "The Times" the gas industry has taken both the front and back pages. As long as we have such support, there is nothing to fear. I believe we are only at the beginning of great things. The fuel industry is all-important. We thank Mr. Thorne for his good wishes, and we look forward to growing prosperity for the industry we all love to serve.

The County Borough.

The CHAIRMAN: The toast I have now to propose is "The County Borough of Eastbourne." I personally have been connected with Eastbourne from a gas point of view for 31 years; and perhaps I am the right person to submit the toast, because I do feel that the Gas Company have had something to do with the very rapid development of this delightful town. When it was decided that our conference should be held at Eastbourne, I saw the Mayor, who expressed his willingness to do everything in his power to make our visit enjoyable. The Mayor, the members of the Corporation, and the officials have done wonders. [Applause.] We are not here, any more than were their Royal Highnesses, for our own personal pleasure. We are here to do good work, and our Association is worthy of the great reception the Mayor and Corporation have given it. I thank them most heartily for all they have done. The French Gas Society have sent four delegates to represent the whole of the French gas industry at this conference. When I wrote my address, I did not know they were coming, and I have been trying all day to think of a way in which I could welcome these gentlemen in the

name of the Association. I will, if you will permit me, welcome them now in their own language. I have been so long connected with the French gas industry as with the English, and I have many great friends in France. Again let me thank the Mayor and Corporation for all they have done for this conference, which I hope will go down as a memorable one.

The Mayor, in reply, said: It is difficult for me to reply to this toast as I should like, because we have a very successful municipal electricity undertaking, and I am afraid that if I praise too highly your Association, I shall suffer severely for it in the future. But there is a point I should like to emphasize. The gas undertaking is getting out into the villages round about; and I welcome your gas mains, so long as they go underground. [Applause.] We are suffering very severely for the moment from an attack that is being made by the Electricity Commissioners, who are desirous of putting 80 ft. masts all over our beautiful country. We are doing all we can to prevent this, but we are not succeeding as we could hope. It is not a suitable thing to do in this go-a-head part, when the Post Office are scrapping their overhead wires. I congratulate the gas industry on putting its mains underground, and I hope the Electricity Commissioners will see their way to do likewise. We owe a great deal to you for the Royal visit to-day. I do not think their Highnesses would have come quite so soon had it not been for the fact that this meeting was taking place, and that your Association is near to the hearts of their Royal Highnesses.

The Visitors.

Mr. C. S. Shapley: When Mr. Thorne remarked that we were not afraid of electricity, I think he intended to say that we should not fear it if it were not State-aided. That is a very important point. I have pleasure in proposing the toast of "The Visitors," coupled with the name of the Marquess of Hartington, who is a Past-President of the Society of British Gas Industries. We have also many other distinguished visitors, and I am sure that everyone has enjoyed being here to-night.

The Marquess of Hartington: On behalf of the visitors, I can assure you that we have greatly enjoyed the lavish hospitality extended to us. We have been hearing something of the gas industry; and I feel, when I look back upon the past connection of my family with the County Borough of Eastbourne, that there was perhaps one flaw in the management. We ought to have had the gas-works in our own hands. [Laughter.] The town is most admirably served by its gas-works; but it is a misfortune that the profit which has been so properly earned has not gone into my coffers.

Gas the Housewife's Greatest Boon.

Your industry fills a great place, though this may not be universally realized. Electricity gets possibly rather more publicity than gas; but gas, in spite of that publicity, continues to secure more users than electricity, and long may it be so. Gas has, perhaps, been the greatest boon which the wife in the ordinary English home has ever known. It is not generally realized what a great amount of useless labour the gas stove saves the housewife. It has conferred, and is still conferring, immense boons on the public, and I believe it will continue to extend its operations for many years to come. As a Past-President of the Society of British Gas Industries, I would take the opportunity of extending fraternal greetings to this Association from the kindred organization. In the matter of relations between employers and employed, the gas industry has played a great part; and we are grateful for the lead which it has given to British industry in this respect.

Mr. F. W. Goodenough: I have come from the Cavendish Hotel to complete proposing the toast which I began there, and which was received with great applause. It is the toast of "The Officers of the Wandsworth, Wimbledon, and Epsom District Gas Company and the Eastbourne Gas Company, coupled with the name of our very good friend, Mr. Croft." I am sure you would not wish to separate without expressing your thanks to these officers for all they have done to make this conference such a success. As Chairman, I know better than any of you can do the enormous amount of work that has been done by them behind the scenes. Mr. Croft has been a perfect marvel in the organization which he has put at our disposal. [Applause.]

Mr. C. M. Croft: Thank you very much. If the conference has been a success, it has been due to the efforts of a lot of people, including the Mayor and Corporation of Eastbourne.

The proceedings were brought to a close with a vote of thanks to the Chairman, which was enthusiastically accorded on the proposition of Sir H. W. Russell Bencraft, M.R.C.S.E.

Cavendish Hotel.

Mr. T. A. I. Howell presided at the dinner at the Cavendish Hotel.

After the Loyal Toasts had been honoured, it was announced that a telegram had been sent to His Majesty the King, and that a reply had been received.

Sir Arthur Duckham, proposing "The Gas Industry," said: I rise with great pleasure to give the toast of the gas industry. I think it is rather the toast of ourselves—in fact, it is the toast of that decadent industry, the gas industry, for which this town has not a hall large enough to take us all for this dinner, so that we have had to split ourselves up into two parties. We in the industry realize that there is much to be done; and when one sits back and considers the industrial conditions of this country and other countries, one really sees how much more there is to do, what tremendous advances there are to be made, and how much greater service we can render in order to bring about a future which will see dirt and dust banished by such a great industry as ours. This industry has served the country in many ways. Thinking to-day of what I should say to you this evening, it seemed to me opportune to remind you that we have possibly served this country in one special way which is of the utmost importance at the present time. I was a pupil of Sir George Livesey. My father was Sir George's greatest friend, and he started me in life before I understood much about things. I was told of, and I heard about, that great cataclysm of labour, the gas-works strike, when I was a young man; and I know how that great genius and great statesman, Sir George Livesey, backed up by others, settled that labour dispute and brought certain conditions into the gas industry which have been developed and which exist to-day. This great industry of ours, as a result, has not had in my remembrance any considerable labour trouble. We are an industry freer from labour troubles than any other industry. We are an industry which is in better association with our workpeople than any other industry, and we are an industry that goes forward taking our men with us, showing them what we want and how we want it, and getting their support and sympathy and efficiency.

The Employer and the Employee.

What, however, are the general industrial conditions to-day? You have the capitalist and administrator on the one side and labour on the other side, and creeping in between all the time is Government interference. We know the Government cannot help industry. Both sides call for the Government to come in; but we know that the only way that industry can prosper, the only way we can get efficient production, and the only way we can give service and compete with the world, is for all those in industry to work together. To-day you have the coal trade, the cotton trade, the textile trade, and other trades all insisting that the Government should play a part between the employer and the employee. I think, however, that we have taught the lesson in our industry that there is no future for industry until industries other than the gas industry conduct their business as we do. That is the picture I feel which is so important to-day. The employer says, "What is the Government going to do?" and the employee says, "What is the Government going to do?" But surely the thing for every employer to do is to say, "Let us go and see the worker, and show the worker what we are doing; let us give the worker a share in what we are earning, and get his support and interest in what we are doing, and demonstrate that we cannot succeed, and cannot go on in life, unless we have the fullest sympathy of the worker." I feel that the greatest service we have rendered to the community has been in promoting good relations between employer and employed; and I trust that the outcome of our industrial troubles will be that other industries will follow our example.

A Tribute to Sir Corbet Woodall.

Mr. Alfred Procter (immediate Past-President, British Commercial Gas Association), replying to the toast, said: My first duty is to express on behalf of the industry our very grateful thanks to Sir Arthur Duckham for the kind things he has been good enough to say about our industry. Sir Arthur Duckham has spoken to you about that great leader, whom I remember very well, in the gas industry, Sir George Livesey; and I think that it is fitting that I should say a few words to you this evening about another great leader whose name is prominently suggested to me, and no doubt, to many others of you—namely, the father of Mr. Henry Woodall, whom to-day we have elected President of our Association. My mind goes back to the first meeting of the British Commercial Gas Association seventeen years ago in Manchester, when Mr. Corbet Woodall, as he was then, was the first President; and I know that those of you who, like myself, were present at that meeting will remember the extraordinary influence that Mr. Corbet Woodall exerted over that first meeting. The dominant note was service—the service the gas industry was to render to the public—and Mr. Corbet Woodall's unbounded confidence in the future of the industry. Those of us who were there felt indeed that he gave a trumpet call to our industry and to all gas administrators; and I venture to think that that inspiration which started from Mr. Corbet Woodall seventeen years ago has grown in force and volume to the present day, and has been maintained by the magnificent leadership that we have in those who control the affairs of the National Gas Council and of this Association. We need that great leadership and inspiration in all our affairs relating to research organization and salesmanship, which alone can make our industry the success which it deserves to be.

Mr. Corbet Woodall said on that occasion, "We are the heralds of a new birth in gas probity." And we can say that this infant, cherished and nurtured by gas administrators since that time, has now grown into a sturdy reality. Mr. Corbet Woodall also referred to the ideal of service which he held out, and in this connection he said of service: "I find in it a means of greatly widening and extending our usefulness to the community—not merely increasing our business and income." To-day, as the result largely of that inspiration, all the gas administrators I meet are imbued with the ideal of public service, as contrasted with a crude commercialism; and we all know that we must stand or fall by this ideal of service.

Splendid Lead of Mr. Goodenough.

I need hardly remind you in this connection of the splendid lead which is given to our Association by the Chairman of the Executive, Mr. Goodenough. We are all familiar with those advertisements of Mr. G. A. Service, and we all admire and appreciate the splendid lead that Mr. Goodenough gives in the organization of the extension of salesmanship, which is of great value to the members of the Association. I think the Association also has been honoured by the fact that Mr. Goodenough has been made Chairman of a Government Committee to increase and extend our knowledge of salesmanship in all branches of industry. I think perhaps the most important thing that has been mentioned by Sir Arthur Duckham is the vitality of the gas industry; and in that connection I would again like to

quote Mr. Corbet Woodall. Addressing the British Commercial Gas Association at the first meeting, and speaking of vitality, he said: "Looking back upon a century of gas supply—it is a long flight of time to look back upon—what I take most pleasure in observing in this connection is the still exuberant vitality and power of growth of our ancient industry. It may be claimed for it as being a centenarian patriarch of old time, that its natural force is not abated." Those were eloquent words, the truth of which has been increasingly realized since they were uttered. How true they were has been shown in the almost phenomenal growth in the use of gas in our country in recent years—a consumption which on a yearly average shows an increase of 3 p.ct. I have no use for—and Sir Arthur Duckham has no use for—those who "talk back numbers." The facts are all against it, and the possibilities of the future are all against it. While we claim—and, I consider, rightly claim—recognition for our past services, we do not ask to be judged entirely by those. We do claim that for our present capacity and our potential possibilities for public service we have an industry of vital moment to the well-being of the community.

A VITAL INDUSTRY.

In these days when electricity is boomed with all the support and influence of the State and the municipalities, it is necessary that we should insist in season and out of season on our right to recognition and fair and equal treatment at the hands of the State. We have the imprimatur of the National Fuel and Power Committee, which said: "The gas industry is one which had adapted itself to modern conditions, and consequently has expanded rapidly and is continuing to expand;" and, further, this Committee said: "We have no doubt that the gas industry as a whole is now, within the limits within which it is confined by statute, a progressive and efficient industry." Need I remind you that there is no method of using our great national asset, coal, so economically and efficiently as by distillation in our retorts, by which we obtain for the service of the community 80 p.ct. of the value of the coal; that we provide residual products of vital use for other industries; and that we have made a striking contribution to the all-important question of smoke abatement. The National Fuel and Power Committee used the words, "Within the limits within which it is confined by statute;" and we ask that those shackles on our possibilities of service should be removed as being no longer necessary for the ultimate protection of the consumer, and, indeed, as being a serious hindrance to the expansion of our business. We ask that we should be set free to manage our business with the freedom of the ordinary trader. To-day we are face to face with more strenuous competition than ever before, but it is not the first time in our history that we have had to meet difficulties and have overcome them with signal success, and I have no doubt that in the future we shall meet this competition, and come out of it with the same success as on former occasions. I would ask you to keep in mind our great heritage—the inherent force and vitality of our industry—and always to set before yourselves our great ideal of public service. I say, notwithstanding the apparent troubles which are before us, let us take heart of grace, and go forward with full confidence in ourselves and with the will to win. If we do this, I am quite sure that the future will have no fears for us.

The CHAIRMAN then proposed "The County Borough of Eastbourne," and again expressed the great appreciation and gratitude of the Association for the manner in which they had been received in Eastbourne by the Corporation and its officials.

Alderman G. B. SODDY, J.P., acknowledging the toast, said that everybody connected with the Corporation regarded it as a great privilege that Associations such as the British Commercial Gas Association should come to Eastbourne for their annual conventions. There was a special reason in the present case for welcoming the Association to Eastbourne, because the President was Chairman of the Eastbourne Gas Company; and he knew that his colleagues on the Council would wish him to say that they were very proud indeed that the local Gas Company in Eastbourne was carrying out most efficiently a very great public service.

Mr. F. W. GOODENOUGH, at this stage, said: I am going to leave you to go to the Grand Hotel to propose the toast of "The Officers of the Wandsworth and Eastbourne Gas Companies, coupled with the name of Mr. Croft." I am sure you all feel very much indebted to Mr. Croft and to his fellow officers of the Wandsworth Gas Company, and also to the officers of the Eastbourne Gas Company, for all that they have done to make this conference such a success. I will ask you, therefore, to drink that toast now, so that I can convey your good wishes to those at the Grand Hotel.

Sir GEORGE DAVIES (Past-President of the British Commercial Gas Association), proposing "The Visitors," said: I should like to express on behalf of our Association the great pleasure we have in meeting visitors on occasions of this kind. I am sure that those who are responsible for carrying on the work of the industry in different parts of the country learn a great deal from conferences, and perhaps hear some wholesome truths. As Mr. Procter said, we are not simply directors of ordinary commercial undertakings to make as much profit as we possibly can for ourselves and our shareholders. We are entrusted with the administration of public utility companies with responsibilities beyond those of the ordinary directorships. That is what we have realized; and I am sure that conferences of this sort bring home to us in a very striking manner the importance of our work and the responsibility to the public attaching to it. I should like to say how extremely grateful we are to the Eastbourne and Wandsworth Gas Companies for the warm welcome they have given to us; and I would like to add how extremely fortunate I think we in the industry are in the personnel of the industry. We could not possibly have two men more able than Sir David Milne-Watson and Mr. Goodenough.

Major A. G. CHURCH, D.S.O., M.P. (Mayor of Wandsworth), responded to the toast. In the course of a short speech, he referred to the possibility of transmitting gas over long distances, and expressed the opinion that capital should be forthcoming for greater developments in the coal and carbonizing industries in the same way that it was being provided for the electrical undertakings of the country.

Councillor Miss A. HUDSON, J.P. (Deputy-Mayor), proposed the health of "The Chairman," and the CHAIRMAN briefly acknowledged the toast.

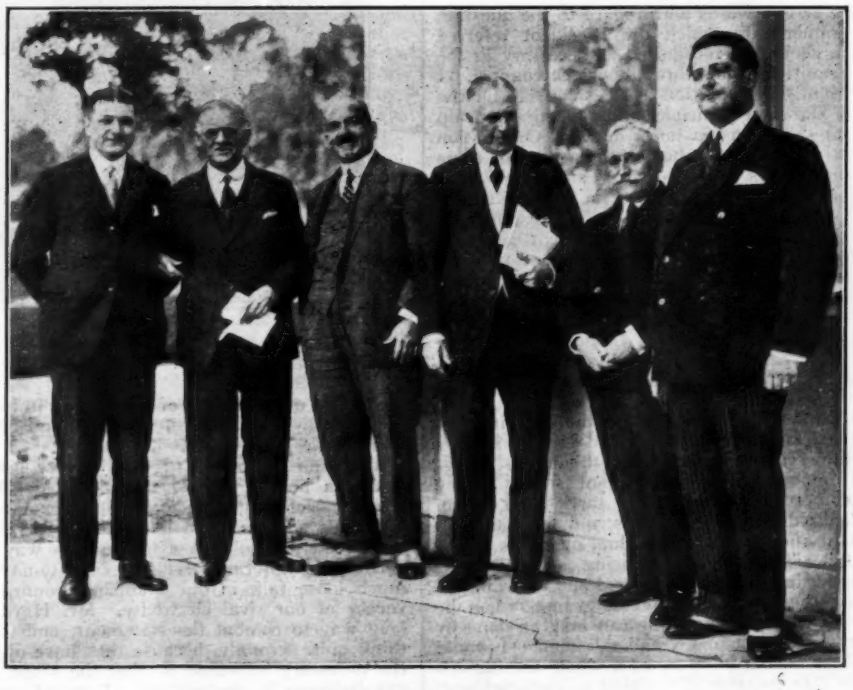
WEDNESDAY'S PROCEEDINGS.

Mr. GOODENOUGH: I have the following resolution to move:

That the Eighteenth Annual Report of the General Committee and the statement of accounts for the year ended March 31, 1929, as printed in the "Bulletin" for October, and circulated to members, be adopted.

[The report was published in the "JOURNAL" last week.]

Every section of the report is indicative of the good work that



THE FRENCH DELEGATION.

LEFT TO RIGHT: M. Pierre Mougin, Mr. F. W. Goodenough, M. Emile Simor St. Just, Mr. Frank H. Jones, M. Auguste Sellié, and M. Marc Dubu.

is being undertaken for the ultimate good of the industry. A large proportion of the work done is in the nature of building for the future. May I say that the report naturally and necessarily has many omissions, for obvious reasons. Much important work done by the Association cannot be shouted from the house-tops, because we do not want to give our competitors information as to exactly how we proceed in regard to our publicity and propaganda work. Your Executive and General Committees are always happy to know that they have the confidence and support of the members generally; and we trust that this confidence will be maintained in the future. We have always felt that our publicity, propaganda, and salesmanship efforts must be intelligently organized and carefully co-ordinated for the successful carrying-on of our national work; and in the report very encouraging proof of this will be found. May I add only one comment in this connection—namely, the hope that the fifty undertakings not now contributing the full basis of 6s. per million c.ft. will come into line with the 800

that do, and that we may have further substantial additions to the steadily growing list of progressive undertakings, representing about half the total in output, who now contribute—or, perhaps I should say, invest—7s. 6d. per million in the cause of the advance and furtherance of the gas industry.

May I just add one or two words with regard to the question of education for commerce to which the President referred yesterday, and which should be recognized as necessary in the board rooms and committee rooms throughout the country. I have had to study recently the question of salesmanship for the country as a whole. The same principles apply to salesmanship for an industry as to salesmanship for a nation. Our nation stands rather in the position that the gas industry did some years ago. For many years we enjoyed a monopoly, or a virtual monopoly, and did not realize the importance of the development of the publicity and salesmanship side of our business. Our nation had, until comparatively recent years, a virtual monopoly of trade overseas, and we as a nation are suffering to-day somewhat from the failure to recognize the needs of changing times with regard to commercial policy, just as the gas industry suffered some years ago—and, indeed, I will not say it does not suffer from that failure still in some quarters to-day. The recognition of the importance of trained, skilled, and adequately paid commercial representatives is not as yet universal in the gas industry. As I said yesterday, if the industry is to go forward and prosper, it is of the very first importance that the need for trained and skilled—which implies also well paid—commercial representatives should be recognized. Unless the importance of an efficient selling policy based on sound commercial principles and carried out by an adequate staff is realized both by directors and by managers of businesses, the best efforts of the individual members of the staff are bound to fail. The buying, producing, and delivering organizations of any business must be directed and co-ordinated to the end of giving the consumer what he wants, when he wants it, and how he wants it; and this can only be done by skilled managers, engineers, chemists, and salesmen. I would most earnestly impress on the industry as a whole the importance of thinking out this question of training and education of staffs for the future. We have to consider the question of for how many positions that are occupied by competent men in the industry to-day there are fully trained competent men ready to succeed them. We have to look ahead, because the fight in the future is undoubtedly going to be heavier and keener than it has been in the past, and we have, in the words of the Scout movement, to "Be Prepared."

Mr. John E. Daw: I have great pleasure in seconding the resolution which has been moved by Mr. Goodenough. I have not had much opportunity of reading the "Bulletin," but from a cursory glance at it the accounts show the very healthy state of the finances of the Association. I am very glad to see that there has been considerable increase in the subscriptions to the Association, and also a correspondingly satisfactory increase in the amount spent in advertising the gas industry. Among other things, I am also glad to see that there has been an increase in the amount spent on exhibitions, which, I take it, means that people are being taught more and more the advantages and uses of gas.

Alderman Sir A. Ball: I have much pleasure in supporting the resolution, though I do not think this report needs any support from me. I notice it says there is a real need for increased publicity for gas; and I would like to impress upon you who are interested in the gas industry the real need for more publicity for our undertakings. We want to try as far as we possibly can to influence all architects to pipe every house for fires as well as cookers. I am one of those who believe that the gas industry has as great a future as it has a wonderful past; and it is up to the young engineers to see that every possible progress is made and that the greatest advantage is taken of all efforts, both educational and publicity, to keep in the forefront the advantages of gas.

The resolution was then put to the meeting, and carried unanimously.

The Importance of the Gas Industry to Labour in General and to the Worker's Home in Particular.

The President: I wish to welcome this morning a gentleman who is not only going to address us, but who has been attending all our meetings in Eastbourne. I refer to Mr. Arthur Hayday, M.P., Vice-President of the National Union of General and Municipal Workers. When you listen to Mr. Hayday you will be listening to somebody who knows what he is talking about; he uses gas and has dealings with practically

all the gas undertakings of the country in his different positions.

[Mr. Hayday's address will be found on later pages of our issue to-day]

Alderman Fred West: I have very great pleasure in proposing a hearty vote of thanks to Mr. Hayday for his extremely useful and practical address. I feel that if only Mr. Hayday's address could be placed in the hands of the man in the street, it would go a tremendous way to remove that unpardonable ignorance which exists to-day. There is far too much loose talk in our municipal councils to-day in the advocacy of our rival electricity. Mr. Hayday's address goes a long way to combat the statement, and to educate those who think quite wrongly, because they have not been supplied with the necessary information, that the scope of usefulness of the gas industry is diminishing. I would venture to suggest to the Council of this Association that, if they would endeavour to produce Mr. Hayday's address in popular pamphlet form, perhaps condensed to some extent, it would do a tremendous

amount of good. I would like to place a copy of this address in the hands of every one of my workmen; and I think many here would like to do the same. They are the best advocates of gas in the sense that they would give the information to their wives, who, after all, are the best advertisers of the usefulness of the public service which gas supplies. There is just one other feature of the address I would like to mention, and that is the happy relationships which prevail in the gas industry between the management and the workpeople. I know of no section of industry which has been so free from trouble and petty squabbles as the gas industry; and the happy relationships which prevail to-day are to no small extent due to the tact, diplomacy, and fair-mindedness of Mr. Hayday and his colleagues in dealing with the gas undertakings and the workpeople. Therefore, I move with the greatest possible pleasure that a very hearty vote of thanks be accorded to Mr. Hayday for his valuable address.

"The Ring Master and the Clown."

Photographed together after a joint appearance on another stage.

[A reference to Sir Lawrence Weaver's Address, which will be published in next week's issue.]

Mr. HENRY WOODALL: It is with very great pleasure that I second this vote of thanks to Mr. Hayday for his able, interesting, and enlightening address.

Councillor A. E. LESLIE: It is almost unnecessary for me to add anything to what the previous speakers have said with regard to Mr. Hayday's address, but I do appreciate very much indeed the opportunity of testifying, in my opinion, to the great value of Mr. Hayday's remarks. I appreciate it all the more as I have the honour to be on the Council of a large industrial city in which gas has been an enormous boon to the workers. In Dundee, which is an industrial city, I know that gas has been an enormous boon. We have been trying to build better houses for the workers, and 500 new houses have been erected in which we have installed a gas cooker and a gas boiler; and we have had such an enormous demand for these houses that we shall be compelled to erect more. We also have a large number of old houses; and our Gas Engineer, who is an excellent official, is doing his best to deal with the existing houses by putting in larger pipes and so meeting the demands for gas until we are able to build new houses.

The vote of thanks was carried with acclamation.

Mr. HAYDAY, acknowledging the vote, said: I thank you very much indeed for your kind vote of thanks. Unfortunately, in the trade union movement many men of my age had to leave school with a fourth-standard elementary education. The gas industry is either serious or it is not. It cannot afford to be half-hearted. If you have confidence in your industry, and want to attract assistance from others, you can only do it by setting an example. The best encouragement, therefore, that you can give to me and my colleagues is to keep closer contact with us, tell us where we can help, and prove that you yourselves are serious over the matter. I should like you, when you leave this most excellent conference, to become—and you need not be afraid of the words—an agitator, a propagandist, or a missionary if you like, because, apart from the financial side of your undertakings, there is the great health missionary work you are capable of performing.

SERVICE TO THE CONSUMER.

A paper bearing this title was then given by Mr. C. M. CROFT, Chief Engineer to the Wandsworth, Wimbledon, and Epsom District Gas Company. This will be published in the "GAS SALESMAN" next week.

GAS: THE MODERN FUEL.

Mr. P. G. G. MOON, Engineer and General Manager of the Bournemouth Gas Company, followed with a paper on the use of gas in hotels and homes in Bournemouth. This also will be published in the "GAS SALESMAN" next week.

Luncheon at the Grand Hotel.

At the close of the meeting, a luncheon was given at the Grand Hotel by the President-Elect, Vice-Presidents, and members of the Association, to the retiring President of the Association and the Directors of the Wandsworth, Wimbledon, and Epsom District Gas Company, and of the Eastbourne Gas Company. Mr. HENRY WOODALL (President-Elect of the Association) was in the Chair.

The toast of "His Majesty the King" having been honoured,

The CHAIRMAN said: This is my first appearance as your President, and I have the pleasantest duty that I shall probably have during my year of office in proposing the toast of "The Retiring President of the Association, and the Directors of the Wandsworth, Wimbledon, and Epsom District Gas Company, and the Eastbourne Gas Company." We have enjoyed great hospitality during the last few days, and Mr. Jones has been a splendid and tireless host, and we know him to be one of the greatest possible believers in our industry, and one of the best supporters of it. He is imbued with the most kindly feelings towards the gas industry, and is, I know, very proud to belong to it. He is also one of the strongest believers in co-partnership, and is also a true disciple of that great movement, and one who is not satisfied with his own success unless others who have worked with him have a share in it. To-day at our conference we have seen how this co-partnership feeling prevails in the industry; and it is one of the happiest things, in my opinion, that we are all prepared to put our knowledge at the disposal of each other at any time it is needed. I think the two papers we have heard to-day and the great detail the authors of those two papers went into, makes us realize how ready we all are to help each other. I must say just a few words about our President's Address. We were not allowed to discuss it, but I think that every paragraph is well worth reading. Moreover, the great sincerity with which Mr. Jones spoke impressed us all.

Mr. FRANK H. JONES, responding to the toast, said: Gentlemen and Harry Woodall—I must say Harry Woodall because we are such old friends, and when I was starting out his father was very kind to me. He was not one of those older men who thought the young men should not be encouraged. On the contrary, he gave me the greatest possible help, and it is therefore with all the more pleasure that I have listened to the very kind remarks that his son and my friend Harry has just made. This is not my swan song. I am making my exit from the stage, but at the same time I am making my entrance into the auditorium, and I wish to stay there as long as I live. I shall watch the progress of this Association with very great interest and confidence, because I am certain that the work we set out to do eighteen years ago is bearing very good fruit. I think this conference at Eastbourne has been a useful one, and I think it will be a still greater success if we can evolve some line of action in order to take full advantage of the ideas that have germinated here. I have enjoyed my year of office. The Executive Committee and the Officers have been so very kind to me that there has been very little work for me to do, but I have been greatly encouraged by what they have done, and can only express my gratitude to them. If anything useful follows from my year of office, then I shall feel that my term as President has not been wasted.

Mr. C. VALON BENNETT, proposing "The Executive Committee and Staff of the 'B.C.G.A.'," said: It is truly a great advantage, not only to the Association and the gas industry, but to the entire Empire, that Mr. Goodenough should be Chairman of the Executive Committee. A busy man always finds time to do good work for others; and Mr. Goodenough is not an exception to this rule. He holds one of the most important executive positions in the largest

gas undertaking in the world. For three years he has been Chairman of the Incorporated Sales Managers' Association, and now he has been elected President of that body. Mr. Goodenough has served on more than one Departmental Committee set up by this and previous Governments, all of which go to prove his great ability in commercial affairs. He has, since its inception, served as Chairman of our Executive Committee; and, though I am aware he is a believer in letting these posts be occupied by different persons, we appreciate that we have a good man, and trust he will serve us as Chairman as long as we want him to—and, if he is agreeable to that, I now pronounce a life sentence upon him. I know the staff admire him as much as we do.

With regard to the Executive Committee, I will be brief. I think I can sum them up by saying that as individuals and as a body they are men of character and ability, determined to give unlimited time and effort to the Association and its work. I am delighted the staff are included in this toast, because they are the people who do all the "donkey work." I realize that every member of

the staff is loyal and hardworking to a degree, but it is obvious that I cannot refer to each of them. I therefore propose to confine my remarks to three of their number. In these days when mere man is so greatly outnumbered by members of the other sex it is not surprising that we should find that the post of Editor is filled by a lady in the person of Mrs. Cloudesley Brereton. She is possessed of great ability, and this, combined with tact, has made her dear to the hearts of everyone with whom she comes into contact. She is a tower of strength to the Association, and we hope we may be fortunate enough to retain her services for many years.

Now with regard to our Manager, Mr. Mason, he is a man as full of wit as he is of vigour, and we delight in supporting the efforts he is making to obtain a hundred per cent. membership of gas undertakings in this Association.

I now come to our friend and Secretary, Mr. Walker. He is a demon for work, and is full of enthusiasm. I can only add my testimony to that expressed by others, that everyone realizes the success of this conference is largely due to the efforts of Mr. Walker and his colleagues. He is well worthy of our thanks, and it is the prayer of each of us that he, too, may be spared to serve the Association for many years.

Mr. GOODENOUGH, replying to the toast, said: I should like on behalf of the Executive and officers to tender our best thanks for the exceedingly kind way in which Mr. Valon Bennett has proposed this toast. He referred to me as your perennial Chairman, and offered me a life sentence. I am afraid I cannot accept that, but I will say I am only too happy to go on serving this Association as long as they really want me. The work that I do as Chairman is rendered extraordinarily easy, first by the fact that the Executive Committee is a band of brothers. We have never had a division or taken a vote on the Executive on any question since we began our work eighteen years ago. We have always been able to arrive at harmonious decisions. I should like to say how sorry we are that one of our two Vice-Chairmen, Mr. Sandeman, is unable to be with us during this conference, owing to the grave illness of his mother. Mr. Sandeman, however, sends his kindest regards and great regret that he is unable to be here. We are very grateful also to Mr. Clark and Mr. Smith, who rendered such excellent service with their short lectures. Mr. Bennett has said that Mr. Mason is as full of wit as he is of vigour. I only wish he were as full of vigour as we would wish, because at the present time his health is not as we should like it to be, and I am sure we all hope that he will soon be restored to full health and strength. Mr. Bennett also rightly congratulated us on having Mrs. Cloudesley Brereton as our Editor and Consultant. We were very much in advance of other industries in our appreciation of the fact that women can be of productive service in industry and commerce, because at the time we appointed Mrs. Cloudesley Brereton there were very few women who held positions of any importance in commerce and industry. Mrs. Cloudesley Brereton has done an enormous amount of organization work for the industry, and has also organized international conferences in Paris and London. It was due to her inspiration and ideas that we were able to start such a wonderful conference as we had at Manchester, and from which we have gone on improving every year until we have had a record conference in Eastbourne. I always remember our present President's father—Mr. Corbet Woodall as he then was—saying to me at that conference: "Goodnenough, I have had the greatest surprise of my life to-day. I came here expecting to meet a fair number of my colleagues in the gas industry, and on having a discussion on papers such as we have been used to at Institution meetings; but we have had a conference to-day beyond anything I had thought of in my imagination, and I am delighted with it. It has been the surprise of my life." That was the greatest compliment that the management of this Association could have from a man of such wide experience as the late Sir Corbet Woodall, who certainly was not in the habit of paying compliments where they were not deserved. As to Mr. Walker, I should like to thank him very cordially on behalf of the Executive and on behalf of myself for the assistance he has given in organizing this and many other conferences.

The last toast was "The Chairman," proposed by Alderman G. B. SODDY and acknowledged in a few words by Mr. HENRY WOODALL.

AN EXTENSION OF PIPE FLOW THEORY.

By ERIC O. ROSE, B.Sc., Assoc.M.Inst.C.E., Assoc.M.Inst.Gas E.

The determination of the laws governing the flow of gases in pipes is a problem that has claimed, and is still claiming, the attention of many, but so much has been accomplished in this direction that the estimation of the loss of head due to friction in gas mains can now be undertaken with a degree of accuracy sufficient for all commercial purposes. A number of reliable formulæ have been evolved for both low and high pressure work, all of which, though they are stated in various forms, are based upon the fundamental conception expressed in Unwin's formula—viz.:

$$Q = K\sqrt{\frac{P_2^2 - P_1^2}{P_1^2\, sL}}$$

where Q = the rate of flow of gas in the pipe.
K = a constant fixed for each diameter of main.
P_2 = initial pressure in the main.
P_1 = final pressure in the main.
s = specific gravity of the gas.
L = length of main.

All high-pressure formulæ preserve this form or some simplification thereof; their main differences lie in their methods of arriving at the values of "K." The low-pressure formulæ can be derived by taking P_1 to be atmospheric pressure and substituting "H," the loss in pressure, for $P_2 - P_1$. The general expression for a low-pressure formula then becomes:

$$Q = C\sqrt{\frac{H}{sL}}$$

where "C" is a constant fixed for each diameter of main.

Cases often arise, however, in which a main is used both for the transmission and for the distribution of gas—that is to say, services may be taken from the main within the length "L" under consideration. An exact determination of the loss in pressure to be anticipated is, of course, impossible, as the relative quantity of gas being taken by each service is variable. Nevertheless, if certain assumptions are made, a general formula can be arrived at. Let us assume, therefore, that each service will take an equal quantity of gas, and that the services are evenly distributed throughout the length of the main—*i.e.*, that gas is tapped off uniformly through the whole of the length "L." This must approximate very closely to the conditions existent at peak load in an average district.

Taking first the simplest case. A main AB is supplied with gas at A and dead-ended at B, the whole of the gas supplied being drawn off by the services. The inversion of the general low-pressure formula gives:

$$H = \frac{sLQ^2}{C^2},$$

which, when applied to a main of infinitesimally short length, becomes:

$$dH = \frac{sq^2}{C^2}\,dL,$$

where "q" is the rate of flow at the point under consideration. If this point be situate at a distance "x" from A, then:

$$q = \frac{Q\,(L - x)}{L}.$$

Substituting this in the equation above—

$$\frac{dH}{dL} = \frac{sQ^2\,(L - x)^2}{C^2\,L^2} = \frac{sQ^2\,(L^2 - 2Lx + x^2)}{C^2\,L^2}.$$

The total pressure drop between A and B is found by integration between the values of $x = O$ and $x = L$, thus:

$$H = \int \frac{sQ^2\,(L^2 - 2Lx + x^2)}{C^2\,L^2}\,dx.$$

$$= \frac{sQ^2\left(L^2 - L^2 + \frac{L^2}{3}\right)}{C^2\,L^2} \textit{ plus a constant.}$$

$$= \frac{sQ^2L}{3C^2} \textit{ plus a constant.}$$

but H = O when L = O; therefore the constant = O and,

$$H = \frac{sQ^2L}{3C^2}.$$

This is one-third of the value of "H" that would be obtained were the main to be considered as one in which the whole of the gas is passing from A to B.

Consider as a second case a main in which only a portion of the gas is tapped off, the remainder passing from the main at B.

If R is the rate at which gas is tapped away by all the services combined, and Q is the rate at which gas is supplied to A, then Q − R is the rate of flow at B, and the rate of flow at a distance "x" from A is:

$$Q - \frac{xR}{L},$$

as before:

$$\frac{dH}{dL} = \frac{s\,(L^2\,Q^2 - 2xQLR + x^2R^2)}{C^2\,L^2},$$

and by integration:

$$H = \frac{sL\left(Q^2 - QR + \frac{R^2}{3}\right)}{C^2}.$$

The two formulæ derived for the cases above will cover most problems of this nature met with in practice, and they can be applied to any of the usual low-pressure formulæ. The high-pressure formulæ do not have to be applied in this connection very frequently, but they could, if necessary, be treated in a similar manner.

EDUCATION FOR COMMERCE AND INDUSTRY.

By Lord Eustace Percy, M.P.

[Address before the British Commercial Gas Association at the Annual Conference in Eastbourne, Oct. 29.]

It is a misfortune that educational discussions and policies are, and have long been, so often confined to problems of comparatively early schooling. The raising of the school age from 14 to 15, whatever may be its advantages and disadvantages—which, of course, I am not going to discuss here—has very little to do with the contribution which education is required to make in these days to the reconstruction and improvement of our national life. Absorbed in these questions, we have missed the supreme importance of those problems of higher education which cannot be solved by legislation or by official administration. It is education after the age of 16 which sets the tone and standard to all early schooling. It is the lack or misdirection of that stage of education which renders our educational system so lamentably incomplete. It is not to the schools, but to the universities and the technical colleges, that we must look if we want to see where we are failing at the present moment and where the hope of the future lies.

To-day, I want to put before you two simple propositions as to the points in which our education for commerce and industry is defective. It is defective, first because it stops too soon, and, secondly, because it too often leads to nothing. I propose to illustrate these two propositions by two examples—one of special interest to commerce and one to industry.

Teaching of Languages.

My first example is the teaching of languages. Our language teaching is ineffective primarily because it so often stops at 16 or even earlier. In our secondary and central schools to-day we have considerably over 400,000 boys and girls learning foreign languages. The great majority of these leave school not later than 16, and, thereafter, very few of them indeed receive the slightest encouragement from their employers to continue their study of languages. There are, of course, exceptions—notably the successful efforts made by the London Chamber of Commerce to promote such study. But the great majority of our secondary school boys and girls drop their French, which is the usual "second language," when they leave school. Moreover, even those who stay on at a secondary school after the age of 16—even those who go on to a University and thus extend their education until the age of 21—commonly drop any serious study of languages as soon as they have obtained the Schools Certificate at 16. At that point they are encouraged by the University examination system to begin specializing at once in their eventual degree subject, and the number who choose foreign languages as their degree subject is very small.

Now the study of languages is the one study which is nearly, if not absolutely, useless unless it is carried forward from boyhood into manhood. You must go on learning a language until you can express adult thoughts in it. If you stop learning it while you are still a boy, you will never be able to use it as a man. In two or three years after 16, you will grow out of your knowledge of it, and will find it difficult and even distasteful to take it up again.

This is particularly true of French. French is the most "adult" of all languages. Hardly any Englishman, I think—except those few who, owing to the circumstances of their life, are practically bilingual—acquires any real appreciation of French before the age of 19 or 20. The predominance of French as a second language in our secondary schools has two results. The boy who leaves school at 16 will depend very largely on reading to keep up his knowledge of a foreign language, and there is very little French literature which at that age he will care to read for its own sake. Having never acquired the reading habit in French, he will forget it rapidly. The boy who stays at school with a view to the university, and has to choose a subject in which to specialize for his degree, is, for much the same reason, unlikely to choose modern languages if the only language with which he is acquainted is French.

A Remedy.

I cannot, within the scope of an address like this, argue the problems arising out of this brief survey. I have recently tried to argue some of them in a book which, when it is published, I shall try to induce Mr. Goodenough to read! But I will venture to make some summary assertions as to the directions in which we must look for a remedy for these defects.

In the first place, the whole system by which a boy is encouraged to regard his general education as finished at 16, and to choose a specialized degree subject at that age, is wrong. The universities should re-establish an entrance test, independent of the Schools Certificate, which will require students to continue the study of some subjects of general education alongside their chosen special subject from 16 to 18.

Secondly, in the course of general education thus continued up to 18, a place should be given to languages as central, though no doubt not as exclusive, as used to be given to Latin and Greek in the old public school curriculum. We need a serious reaction from the recent tendency to over-emphasize science in schools. We have drifted further away from languages as a medium of education than, I think, any continental country; and the whole of our education, including, I believe, science education itself, has suffered in consequence.

Which Modern Language?

Next, we should reconsider the whole question as to which modern languages are most suitable for schools. This question is one of great difficulty. Both on general educational grounds and on practical grounds, there is much to be said in favour of German rather than French as the language most suitable for English boys or girls between 11 and 16; but there are obvious practical reasons which make one hesitate to put French in a subordinate position. The whole question should be thoroughly explored. Perhaps I may add parenthetically a warning to business men not to advocate the early teaching of Spanish. Its easiness and its lack of literature make it unsuitable, in my judgment, as a language for early study, while it can be acquired without difficulty later by anyone with the least taste for, and training in, languages.

Finally, if the universities use their influence to encourage the study of languages at school between 16 and 18, technical colleges should pursue a similar policy, and, in doing so, they should receive the active co-operation of employers. Young people who enter employment from the secondary schools at 16 should be given every inducement to continue the study of languages for two years, not only in special commercial language courses, but also, I suggest, in many cases as part of any apprenticeship course which they may take in other subjects.

But, obviously, any development of this kind depends primarily on academic authorities, and especially the universities, taking the lead in a reconsideration of the present examination system, with its tendency to early specialization at school, and of the whole question of the place of languages in general education. We need desperately a common university policy in these matters, and I fear that, at the present moment, such a policy is lacking. I suggest that business men who take an interest in these problems should look beyond the school to the university, which so largely, though often so unconsciously, influences and must influence the whole character of school education, and should invite the universities to formulate a more coherent policy.

Our Present Education Often Leads to Nothing.

I pass to my second proposition, that our education is defective because it too often leads to nothing. Now here I want to speak more particularly of the technical college and of the policy of industrial employers towards their workshop staff. The supreme anomaly of technical education on its industrial side seems to me to be that it is the workshop apprentice who chiefly comes to the evening or day classes of the technical college, whereas the road to promotion in industry generally lies, not through the workshop, however much it may be supplemented by technical education, but through offices.

This fact is reflected in the attitude of employers towards apprenticeship classes. They are to-day encouraging such classes as never before; they are realizing the advantages of giving their apprentices time off during the day; in a number of ways they are giving the most valuable support to the technical college. But they assume, I think, that the work of the college is over when the apprenticeship course is completed. In other words, as soon as the boy has become a fully skilled worker in the shop, his education is regarded as finished. He may continue to attend evening classes for his own amusement, but, by doing so, whatever he learns, he has no particular prospect of increasing the value of his contribution to his industry, or of making a career for himself in that industry. The clerk may rise to management, and every effort he makes to continue his education is likely to improve his prospects, but the workshop apprentice can hardly raise his eyes higher than the position of foreman.

There is, I know, one industry to which this generalization does not apply—the coal industry, where the road from apprenticeship to management is clearly marked; nor does it, of course, apply to that type of apprenticeship—for instance, premium apprenticeship in the engineering industry—whose object

it is to give workshop training to men destined for higher positions. Doubtless there are other exceptions—I think the gas industry is perhaps one of them—but for the ex-elementary schoolboy the generalization is, I think, broadly true.

Consider what must be the effect of this lack of prospects on the boy or the young man who "finds himself" intellectually during his apprenticeship course. He is just at the age when he is most likely to find himself, to awaken to new interests and become conscious of unsuspected abilities. To him, precisely the kind of recruit which industry most needs, his apprenticeship course at the technical college will appear mainly valuable, not as an end in itself, but as an introduction to higher studies. But he finds that there is no recognized road for him to such higher studies; if he goes on to them, if his technical college is one that can provide them, he must do so, as it were, as an amateur, not as a professional. Is it any wonder if sometimes he decides to drop industrial work and become a teacher, thereby helping to confirm the suspicion entertained in some quarters that technical institutes exist mainly to train teachers for other technical institutes?

Routine and Research Workers.

I confess I am haunted by the feeling that in this way we are allowing to run to waste in our technical colleges and in our workshops just that original talent which industry needs, and which, I think, industrialists find that they are failing to recruit from the science and technological departments of the universities. I have, for instance, heard complaints from industrialists keenly interested in research that they can get for their laboratories any number of competent routine chemists from their local university, but they cannot find men with a bent for original research. Is it likely that they will do so? The graduates they are recruiting began specializing in chemistry at school at the age of 16; ever since then they have been "cramming" for a degree examination. Here we touch again on those questions of university policy of which I have already spoken. Is it not, perhaps, not merely as likely, but even more likely, that the qualities these industrialists demand are often to be found among their workshop apprentices who are coming to the end of their apprenticeship course at the technical college, and, having reached the end, are about to fall over the edge into permanent obscurity? One has frequently heard the view expressed that the sons of better-to-do parents who intend to go into industry after passing through the university would be well advised to leave school early and get a year or two's experience in the works before entering the university. The boy who is approaching the completion of his apprenticeship course in the technical college has often just this mixed school and works experience; yet it is just this promising material to which we fail to give the opportunity of further development.

We Must Promote Higher Technical Study.

If there is any force in these considerations, the remedy lies in two directions. We must promote the development of courses of higher technical and business study in our technical colleges, and give every possible inducement to the young man who has completed his apprenticeship to go on to these courses. We must also consider seriously how we can give an opportunity to the best of these young men to take a degree course at the local university, either under "sandwich" arrangements or otherwise.

One further word: Commerce and industry, if they are wise, will have a greater and a more direct voice in, and responsibility for, the policy of our technical colleges in the future than in the past. The Local Government Act has greatly reduced the contribution which commercial and industrial firms will make to the rates out of which these colleges are mainly supported. If their interest in, and demands upon, technical education continue to increase at the same rate as recently, they will almost certainly be expected, and should take the initiative in offering, to make special voluntary contributions to the colleges. Colleges directly endowed by industry as well as out of the rates will, I believe, find themselves in many ways in a sounder position than at present. Without in the least discrediting the excellent work which municipalities have done in developing technical education, we can see that colleges which can rely on substantial endowments will be able to develop a measure of academic independence more suited to their status as great institutions of higher education. The development of these institutions to their utmost capacity is our great opportunity in education in this generation. Let us show ourselves worthy of that opportunity.

IMPORTANCE OF THE GAS INDUSTRY TO LABOUR IN GENERAL AND TO THE WORKER'S HOME IN PARTICULAR.

By Arthur Hayday, M P., Vice-President of the National Union of General and Municipal Workers.

[Address before the British Commercial Gas Association at the Annual Conference in Eastbourne, Oct. 30.]

It is a great pleasure to me to have the opportunity of addressing this Conference of one of the great organizations of the gas industry, as I hope I may claim a first hand knowledge of what I want to talk about, and I regard it as important at this juncture in our national history to say what I am going to say.

My subject is the gas industry from the workman's point of view. I am a Trade Union official. I have been an organizer of manual and other weekly wage earners all my life. I was born in West Ham not so very far from the largest gas-works in the world, and in the very midst of the largest population of working people in England. About 42 years ago, I was assisting in the erection of one of the large gasholders at Beckton. I started work at nine years of age. Things have changed a great deal since then. I believe that one of the roads built over the market gardens in which I started work as a boy is now called after my name. My working life has included what is still, I suppose, the most strenuous job open to any man in the fuel or any other industry—I have been a trimmer in the stoke-hole of a tramp steamer. I know, therefore, something of the practical side of the application of heat to industrial processes! I was for years a member of one of the few Labour Local Authorities in England. My memories go back to the days of the great dock strike, and I have seen and taken part in the vast changes in the status and outlook of the rank and file of the industrial workers of Great Britain which have revolutionized the outlook of that great mass of unorganized, so-called unskilled workers—men often casually employed, often unemployed; men most of whom never had the chance to learn a trade by day and were usually too tired and dispirited to learn anything else when work was over at night. And I know well how great an improvement has taken place and how much work it took to win it and build up the great workers' organizations of to-day—know it too well to believe in risking short cuts to the millennium.

What Gas has done for the Workers.

Now I want to talk to you to-day, first of all, about what gas has done for the worker in this industry, for the worker in other industries, and for all workers in their homes—and I regard it as a duty to do so at this particular time, because there is, in my opinion, a great tendency to-day to overlook those great services. All too many folk are prone to forget the older-established gas industry, and all that it has done for labour, and to favour and foster the new baby electricity, just because it is new. There is also no doubt that the fact that there is something mysterious and marvellous about electricity makes some people think there is no limit to its possibilities. They are inclined to imagine that there is some magic virtue in doing a thing by electricity even if it can be done just as well or better by some other means and at less cost.

Now those of us who know the facts want to clear the air of that idea—which may well cost the nation dear if it is allowed to run riot, and may well put out of employment thousands of workers with no corresponding advantage to anyone else. Electricity is only one form of the energy in the coal which is our great source of energy in this almost waterless (*i.e.*, water-power-less) country. There is every whit as much romance and wonder in the conversion of the coal formed millions of years ago out of the primeval forests into the drugs, dyes, disinfectants, fertilizers, oils, motor spirits, and scores of fine chemicals, as well as into gas and coke which represent 75 p.ct. of the coal's heat energy, as there is in getting only 20 p.ct. of the heat energy out of it in the form of electricity and losing all the rest and the chemical wealth as well.

The romance of the gas-works is at least as interesting as that of the electric generating station—and three or four times as economically efficient.

Electricity has performed and is performing wonderful services for mankind, and no one wants to decry or belittle them for one minute—but don't let us get into the way of talking as if it was "the only pebble on the beach," and as if gas had done and was doing nothing for mankind, seeing that its record is what it is, and its power for service to the great masses of our working population is what we know it to be.

Gas has driven dirt and drudgery and danger out of millions of working-men's homes and out of the factories in which they labour; it has diminished disease among the young and the aged, and has given a chance of healthy and cheerful existence to the teeming populations of our towns and cities by halving

the smoke and doubling the sunshine. It has helped in many a home to save the man from wasting time, money, and health in the public-house by helping the woman to give him well-cooked food in a clean and well-lighted house.

The most notable change in these home conditions is perhaps to be seen at breakfast-time. Probably those so fortunately placed that they have never known what it means to be unable to get even a hot drink first thing in the morning, fail to understand what it meant when first the working-man's wife was able by turning a tap and lighting a match to be able to make a cup of tea or cocoa, and to fry a bit of bacon in a few minutes. For the early shift, such a start for the day, before the rest of the world is stirring from bed, means all the difference immediately between misery and comfort, and also ultimately between good health and ill-health. The gas ring and the gas cooker have been the greatest factors in abolishing the early morning "tot of rum" at the factory gates, and have been among the real builders of health and strength which are the foundation both of factory efficiency and household happiness.

"Even a Man Can Cook by Gas."

The simplicity of the whole business of cooking by gas means that if his wife is ill the man himself can cook his own breakfast—for "even a man can cook by gas" to use one of your own slogans. And many a man whose father went off cold and cheerless to his job, now sets out well fortified for the day by a substantial warm meal, even if he has to leave by six or seven o'clock; he has, moreover, been able, when his wife is laid by, to take her a cup of tea in bed before he leaves. In any case if he works on early shifts he can fend for himself if all is put ready over-night, and his wife can get up later to see the children off to school and prepare their breakfast in reasonable peace and comfort after the father has gone to work.

Again, no one who knows what he or she is talking about believes that any woman wants her house to be dirty or dark or the food to be unfit to eat—but cleanliness means hard work, very hard work when the coal fire and the coal-heated copper is all that mother has to her hand, and cooking is no easy task when the fire depends upon a domestic stoker.

Because electricity is the newest thing in the line of cooking and heating, some people talk as if the working woman was still living in the dark ages of the coal range or worse still, the little open "register" coal fire with its hob, and nothing more for a kettle or frying-pan. They ignore entirely the wonderful revolution the slot-meter has brought about in the working-home, even if that home is only a lodging. Gas has already made possible what the advocates of "electricity for all" can merely promise; and at a price the poor can afford to pay. I read a few days ago an article on what can be done with a pennyworth of gas. It surprised me; but I expect it was just A.B.C. to most thrifty wives.

Penny-in-the-slot Meters.

The truth is that 4½ million penny-in-the-slot meters that have been put into the homes of our workers during the past generation—since about 1895—have simply revolutionized life for our women-folk in the matter of their cooking; in addition to which the incandescent burner has proved an enormous boon in giving a light by which mother can sew and her boys and girls can do home-lessons and father can read his paper, and in giving with the light a modicum of warmth that is worth a good deal of cash; the gas-fired wash-copper is taking the horror out of Monday in thousands of homes; and the gas fire is making the parlour useful as well as ornamental.

Moreover, the gas burner has wiped out the cheap lamp accident. The total deaths from accidents due to the use of gas from all causes is to-day much less than the number by which deaths from lamp accidents have decreased since the slot gas meter became general.

Are all these boons and blessings which gas has brought at very small cost to the worker and his family in his home, and the enormous improvement wrought by gas in working conditions when heat processes are employed in industry—*plus* the boon of works canteens made possible by gas appliances—are all these to be forgotten or overlooked, and are the hundred thousand workers engaged in the gas industry, and the many thousands employed in ancillary trades, to be thrown on the scrap-heap, in order that the same services shall be rendered by electricity—at greater cost, with a huge waste of coal and chemicals, and with a smaller amount of labour employed?

To ask the question is to answer it—but the trouble is that no one outside the gas industry seems to know the facts or, if they do, to think seriously about them and their inferences.

It is quite tiresome and futile for either the electrician or gas engineer to claim to be the one and only cure for all ills in the home or factory. Where there are technical advantages for one or the other, let them and the consumer, not the politician, decide. For my own part, I believe the actual practical result will be that every up-to-date firm and probably eventually every house, will use both. Gas-works are often large consumers of electricity, and there are probably few pieces of electrical apparatus manufactured without the aid of gas. As long as the question is fairly decided on technical and economic grounds, well and good, but the scales must no longer be weighted as they have been to our disadvantage simply because some people think electricity is fashionable and "the coming thing."

On this point it may surprise some people to know that in the last five years, in spite of the rapid growth of electricity under national protection and stimulation, the rate of growth of the gas industry has been 50 p.ct. faster; for every two extra units delivered to the consumer by the electrician, the gas engineer has been called upon to deliver three.

I repeat that nothing I have said is in any way said to deprecate the invaluable services rendered, and to be rendered, by the electrical industry, but only to correct the one-sided and extravagant assertions of some of its incautious devotees which may have a serious and unfair effect by influencing Government and public action to the detriment of an equally important and far larger public service.

I appeal to all my colleagues in Parliament and elsewhere to look into this matter very carefully and thoroughly, and not to let rank injustice be done to a great body of workers in this old but ever young and progressive industry. Let us have a sense of proportion and of the fitness of things, and not run madly after what may easily prove a "Will o' the Wisp."

Gas and the Community as a Whole.

Now I should like to say something about the gas industry from the very broadest point of view—from that of the community as a whole, and not only of the workers engaged in it.

One of the first things that strikes me about the gas industry is that it really does produce something. It is not one of those wonderful schemes which sometimes seem to get too much encouragement from the powers-that-be. We read in the newspapers how someone or other seems to collect a million or so by shuffling papers about on the "get-rich-quick" principle. I do not profess to be a financier, but I do know that—owing to sliding scales which limit dividends according to price and to other similar provisions—the people at the head of the gas industry are really bound to concentrate on putting gas into circulation and not "water." There are a fair number of co-partners in the gas industry—I wish there were more—drawing dividends from it, and, after all, most working people expect to draw a dividend from their co-operative stores or other savings. No thinking man objects to a fair return on people's savings. It is the suspicion that huge and unfair profits are juggled with in some financial transactions by people who are not really producing anything at all that makes confidence between worker and employer so difficult in many industries. This is clearly not the case in the gas industry. Controlled as it is in this respect, I think the industry has gained by realizing that its real mission is not to make a huge profit for individuals, but to fulfil a genuine need of the whole community.

I should like to refer in passing to a small matter which also shows the good effect on an industry, which is more concerned to be a public service than a mere opportunity for private profit-making. All who know at first hand the conditions of the poor man's budget realize the harm which is often done by dishonest credit and tally systems of hire-purchase.

The gas industry is, I suppose, one of the largest industries employing the hire or hire-purchase system, and yet one never hears of abuse in connection with the millions of articles hired out and maintained by the gas companies. They are not endeavouring to inveigle people into injudicious expenditure. They realize that, for an industry of their size and standing, cheap and nasty articles do not pay in the long run. Not only are all the best gas undertakings in the very forefront of the movement for making service to the consumer their watch-word, but the united industry has been a pioneer in endeavouring to organize itself as one whole to further the same end, starting, as you know, before the war and long before the blessed word "rationalization" was heard of.

Rationalization.

Mention of the word "rationalization" leads me to touch on a point where I hope the men's organization can co-operate with the management. This is not the place to talk politics, and I and a large part of this audience may perhaps agree to differ on many economic points. But we can at least agree upon this, that whatever restrictions and regulations may be imposed upon any industry, they should be practical and for the public benefit, and not just meaningless remnants of obsolete legal prejudice and precedents, which rather remind one of the human appendix—survivals which cannot do any good, and sometimes become really dangerous unless they are removed.

I think since the war everyone, internationally and nationally, has begun to realize that the time has passed for restrictions which make it difficult for large-minded views to be taken of industry as a whole. Obviously, there are dangers in huge amalgamations and widespread "understandings" and these must be provided against. But every intelligent person appreciates nowadays that large scale concerns and large scale minds are necessary if we are to hold our own. I am not a lawyer, but I know that the gas industry badly needs one of these operations for appendicitis. Being an old industry it is fettered by all sorts of antiquated rules and regulations which seriously hamper its development. Take just one example. No one of my way of thinking can sympathize with rules which

prevent co-operation between a municipal and a company undertaking. We are not interested in the question whether municipality A or company B will benefit financially—we want cheap fuel and lots of it, and we want it quickly. If antiquated legal restrictions stand in the way, they ought to be abolished.

Every worker has a special interest in the greater use of scientific fuel. Nearly everything that differentiates man from the brute is the result of using heat. Man alone cooks his food, and he alone uses tools, most of which he makes by heat. In the old days, and even now far too often, the conditions of the men who handled these vital heat processes in the factories of the country were deplorable. The dirt, bad atmosphere, and intolerable physical strain and over-fatigue were, and still are—where up-to-date appliances are absent—inhuman. The vast increase in the use of scientific heat not only enables us to keep our lead in the quality of our industrial workmanship over the rest of the world, and so compete even with cheap foreign labour, but it means that gradually we are getting nearer the day when the man who works with his hands will not be so worn out and degraded by his surroundings that he falls weakly into an inferior way of living. The use of crude coal in either home or factory is out of date, and I hope to see the day when most of the unnecessary dirt associated with industry and with large centres of population is a thing of the past.

If I may draw an analogy which, of course, you will not press too far, I think the fuel problem in the next few years as it appears to those who are workers, consumers, voters, but not owners, bears some resemblance to the traffic problem in the big towns. We need not for the moment discuss the theoretical merits of public or private ownership, we only know that everyone is travelling more and more, and will travel more, and ought to travel more. We know that some sort of practical agreement must be come to, to benefit both the consumer and the worker whether he works for some private concern or a local authority. The public must be served, and is not much interested in the details of petty competition. So, I may suggest, the ordinary man in the street is not much interested in petty competition between rival forms of fuel. He wants a decent service suited to his varying needs and income. It is up to all of us who earn our living by supplying these wants to make the most of the country's resources, to give as good service as possible, and to hasten as much as we can the day when British industry is equipped with the best apparatus, intelligently operated by men secure enough in their jobs to take a real and educated interest in doing the best they can. If the industry as a whole shows, as I think my experience on the National Joint Industrial Council entitles me to say that it does show, that it is moving steadily along these lines, then it is up to the Government and the local authorities to give it every support. This they can do, not only by freeing it from any restrictions which may have become unnecessary, but by putting at its disposal every encouragement to modernize and extend its network of services which already touch thousands of industries and millions of homes.

In conclusion, let me say: No one will deny that the gas industry has in its National Joint Industrial Council, and its Regional Councils, very efficient machinery for building up and maintaining happy relations between employers and employed, and thus helping in many ways to attain the end in view.

I have been Joint Secretary of the National Joint Industrial Council since its inception, and I share with all others connected with it a very legitimate pride in its achievements. At the outset the Council dealt with purely labour questions, and it continues to do so with success. But this co-operation has had other results. It has led to the growth of mutual confidence and understanding between both sides, and now the Council is called to consider other questions of a more general nature affecting the industry.

I look forward with confidence to further developments which will benefit all connected with the industry, and we shall look to the British Commercial Gas Association, which has given me a very welcome opportunity of addressing you, to find ever increasing markets for the greater output which complete co-operation between employer and employed will produce.

COKE OVEN MANAGERS' ASSOCIATION.

Annual Dinner.

The Annual Dinner of the Coke Oven Managers' Association, held at the Hotel Great Central, London, N.W., on Thursday, Oct. 31, was a highly successful function. The Association entertained as its chief guest Mr. Ben Turner, M.P. (H.M. Secretary for Mines), while other guests included Sir David Milne-Watson, D.L., LL.D., and the Presidents of a number of societies whose work is closely allied with that of the Association, including Mr. C. S. Shapley, the President of the Institution of Gas Engineers. The only regret was that Mr. A. H. Middleton, of Consett, the Association's President, was prevented by illness from attending; and Mr. G. Crisp, the first President of the Association, occupied the Chair.

Mr. Ben Turner, proposing the toast of "The Coke Oven Managers' Association," commented upon the enormous growth of the coking industry during the lifetime of those living to-day, which growth had impelled those in charge of coke ovens to organize themselves into this Association. It was, of course, an Association established for the promotion of the well-being of those engaged in this mighty industry, but he hoped, and felt sure, that it was also an organization existing for the betterment of industrial and commercial relationships. He was glad also that it had its educational interests; in these days it was very desirable that those who were controlling, guiding, and developing industries such as the coke oven industry should not only devote proper attention to their own interests, but should also look ahead and endeavour to prepare for the conditions which would have to be met ten, twenty, or even fifty years hence. The coke oven plants in the kingdom were guided and controlled by men who were fitted by scientific education to get the best from the coal they had to treat. He considered that the coke ovens and bye-product plants in general were marvels of scientific development, and their operation was of benefit to the coal trade and of benefit to the nation at large.

Discussing the use of coke oven gas for town purposes, he said that the local authority at Ossett had bought a gas-works some thirty years ago, and at that time it appeared to be a very profitable venture. In fact, the gas-works had paid until midway through the great war, when they had become, like so many other gas-works, unprofitable. Gas was no longer manufactured at these works, however, and the town was being supplied with surplus gas from a coke oven plant three miles distant. That was because the scientists had shown them how to do these things.

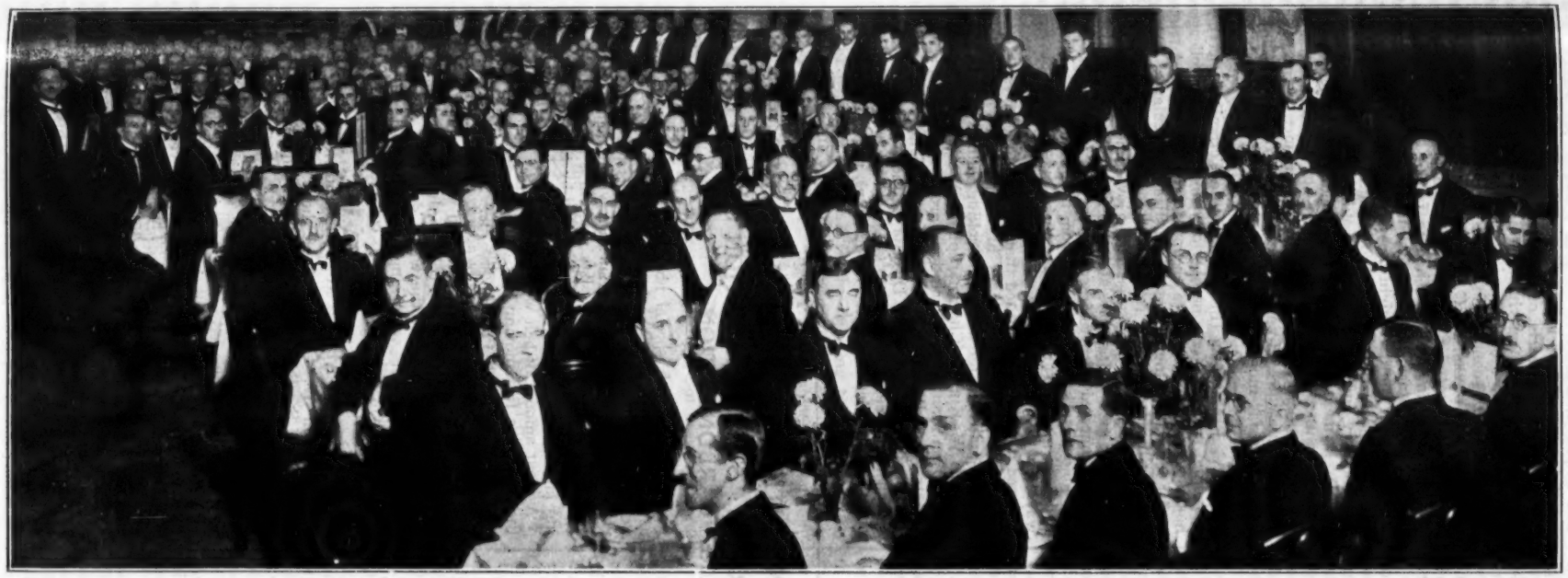
The coke oven plants were at present ancillary to the coal producing undertakings, and it was contended in certain circles that the two might safely and wisely be run together in order that the joint undertaking might be made profitable. It was not possible for anyone such as himself to indicate for the moment what the Government's proposals were in regard to the coal industry. The pooled intelligence of all engaged in the industry, and the sympathy of those outside it, were needed to reclaim this mighty second basic industry of the land. He trusted that at some time this mighty industry might accept the advice given in the Mond-Turner declaration, and appoint a joint industrial council, which would devise means by which those who owned and worked the plants could be benefited.

Growth of the Association.

The Chairman responded. After thanking Mr. Turner for the manner in which he had proposed the toast, he apologized for the absence of Mr. Middleton, the President; he regretted that the President's absence was due to illness, and wished him a speedy and complete return to normal health. The service rendered by Mr. Middleton to the Association, he added, was unequalled by that of any other member, and his inability to preside at this function must have been as keen a disappointment to him as it was to the members generally.

Reviewing briefly the past work of the Association, the Chairman said that, as its first President, he could look back on its early struggles, and feel intense pride—which he knew was shared by all—in the remarkable progress subsequently made. The Association was formed in 1915, and was looked upon with considerable suspicion by nearly everybody at that time. Owners seemed to regard it as another trade union coming to worry them; workmen had openly charged the members of the Association with meeting together for the purpose of planning schemes to combat their efforts to bring about improved conditions; other scientific organizations either regarded it as of small account or merely tolerated it. To-day, however, that state of affairs had changed. Owners and their representatives admitted that the interchange of knowledge and ideas which the meetings of the Association had made possible, and the interest stimulated, had tended to increase the efficiency of the operation of plants. Workmen had taken a live and intelligent interest in its proceedings and papers, as recorded in the Technical Press; and kindred societies had accepted the members of the Association as worthy companions, not merely because of their specialized knowledge of coal technology, but also because they had men in their ranks whose qualifications were second to none in the country. For much of the progress that had been made, the Association was indebted to the Technical Press, which had always been ready and willing to give prominence to its papers, and generally assist by advice.

With regard to the coke oven industry, he said that, without wishing to appear pessimistic, he was apprehensive of the future. The coking plants of this country were, speaking



THE COKE OVEN MANAGERS' ASSOCIATION AT DINNER.

generally, out of date, and consequently not up to the highest standard of efficiency, and they were costly to operate as compared with the plants of foreign competitors. This meant that coke was more costly, and the higher cost was passed on to the pig-iron, the steel, and the finished products in ever-increasing percentages. Why should these conditions prevail? Probably no other industry had made such progress in improved equipment as had this, and yet they in this country were unable to adopt them, because colliery and steel works proprietors had no assurance that stable industrial conditions would prevail for such a period that the expenditure involved in re-organizing their plants would be worth while. A coal stoppage had a most devastating effect upon a battery of coke ovens, and in these days the proprietors of plants had enough difficulty in making ends meet without going to the expense of re-organizing equipment unless it stood a chance of fair treatment. The damage, actual and consequential, which coke ovens and blast furnaces had suffered because of the disturbed industrial conditions of the past ten years could not be estimated.

The Bye-Products Market.

The position with regard to bye-products was also unsatisfactory. To-day sulphate of ammonia, the principal bye-product of the coke ovens, was realizing only about half the price obtained for it during the war. Benzole had come into some measure of popularity, assisted by the tax on foreign motor spirit, and he believed it would be in still greater demand if designers of carburettors would pay some attention to its peculiar composition, and so attain more complete and efficient combustion. The position with regard to tar and tar products was depressing. America, once their largest customer for creosote oil and the like, was now producing enough for her own needs, and, indeed, might soon be exporting, particularly as her own requirements were falling, owing to the introduction of steel sleepers. The future of tar seemed to be concerned with road making and repairing. Experience had shown that as a road binder it was superior to anything else; yet they had to meet very serious competition from abroad in bitumen. It was true that bitumen was imported in the raw state, and that a certain number of men were employed in its preparation, but, where there was one man employed in this country in the preparation of bitumen, there were hundreds employed in the production of tar. Unless this aspect of the bye-product business was tackled speedily and with vigour, their outlets for tar would be seriously restricted. Some assistance from the Government was needed urgently; and in view of their tremendous programme of road construction, there was ample opportunity for giving that assistance by specifying the use of British tar for British roads. If it were thought that he was unfair in making this proposal, he would suggest that a road bound with tar and another bound with bitumen be allowed to wear for a couple of years, so that it could be decided which stood the better. He only asked for fair play.

Science as a Tree.

Mr. W. Green (Member of General Council), proposing the toast of "Kindred Societies," said the Association was gratified to entertain representatives of the Iron and Steel Institute, the Institution of Gas Engineers, the Institute of Fuel, the Society of Chemical Industry, and the Ceramic Society, whose presence indicated the feeling of kinship which the toast implied. He pictured science as a tree, pure science being represented by the roots, applied science as represented by the trunk, and the societies whose members were practising applied science as represented by the branches. Knowledge—the spreading of which was the primary aim of the various societies—could be obtained by research, by the interchange of experiences, and by publicity. Research was a very thorny problem; it was not a proposition that could be taken on lightheartedly, because the way of research was very hard, tedious, and laborious. The personnel engaged in it must be very carefully chosen, for they must have the proper acumen for such work. Referring to negative research—*i.e.*, that which did not provide actual profit—he emphasized that by this type of research many a proposition had been investigated and found not

worth while, so that much money had been saved—and money saved was money earned. He urged upon the coal industry, and particularly the coal carbonizing industries, the need for much greater endeavour in regard to research.

Emphasizing the importance of encouraging collaboration and co-operation among the various technical bodies, he suggested that more joint meetings might be arranged. Some progress had already been made in this direction, as, for example, in the holding of conferences under the ægis of the Joint Committee of the Fuel Section of the Society of Chemical Industry, the Institution of Gas Engineers, the Institute of Fuel, and the Coke Oven Managers' Association. As the result of the work of that Committee the standardization of tar tests had been accomplished.

Discussing publicity, he pointed out that the amount of technical literature that technical men were expected to read nowadays was becoming so great that it was difficult for them to find time to deal with it. Therefore, he suggested that the kindred societies should co-operate in a scheme the object of which would be to provide abstracts of information of common interest, and distribute those abstracts to the members of all the societies co-operating, without in any way impairing the efficiency of the individual societies.

Pure and Applied Science.

Prof. Henry Louis, M.A., D.Sc., F.I.C. (President of the Iron and Steel Institute, and an Hon. Member of the Coke Oven Managers' Association), responding to the toast, said Mr. Green had very wisely limited the toast to those kindred societies which were represented at that function, but he himself took a rather wider view of the subject. Indeed, he was rather appalled by the magnitude of the task of speaking on behalf of the kindred societies, because every branch of science and technology was represented by one or more societies, and it was difficult to think of any one of the subjects treated by them that had not some point of contact with coke manufacture. Yet, strangely enough, the development of the scientific side of the coking industry was of quite modern growth.

But that was only half the story. Sir Alfred Ewing, in his magnificent address on the occasion of the centenary celebrations of the Institution of Civil Engineers last year, had pointed out that, great as had been the assistance that technology had received from science, science had also been helped forward in equal degree by the work of the technologist; the latter had placed at the disposal of the scientist better appliances and instruments for prosecuting research, while at the same time many researches instituted for purely economic purposes had helped ultimately to advance scientific knowledge in no small degree. Pure science and applied science were thus continually assisting each other. Pure science remained pure science only until the technologist had found some means of applying it, and the pure science of to-day was the applied science of to-morrow.

Mr. G. T. Purves, F.I.C., A.I.Mech.E., proposing the toast of "Allied Industries," pointed out some of the difficulties which coke oven managers had to face. The coke oven industry had contact with the coal industry. Mr. Turner had suggested that the two might be welded more closely together, but in his (Mr. Purves') view, the close contact between the coal industry and the bye-product coking industry had retarded the development of the latter. Fundamentally there was no point of contact between the two. He believed that they would not achieve the best development of bye-product coking until it was absolutely free from the coal industry. The coking industry was far more closely in contact with the blast furnace industry.

Mr. W. J. Gardner (President of the Ceramic Society), responding, said that for a number of years he and his colleagues had devoted their efforts to the production of the best refractories for the coking and gas industries particularly. During the war the demand for refractories for use in the making of war materials had encouraged the Government to secure the services of men such as Dr. Mellor, Prof. Cobb, Mr. Rees, and others connected with their colleagues and universities. They had done remarkable work, and from that time every endeavour had been made to understand the technique of the subject in a way in which perhaps it was not understood previously. He believed it would be admitted that the manufacturers of refractories had made some strides in the direction of producing suitable materials for use in the coking industry.

Mr. J. W. Kirkby (Chairman of the Northern Section of the Coke Oven Managers' Association) proposed the toast of "The Guests," and Prof. H. V. A. Briscoe, D.Sc., F.I.C. (Head of the Chemical Department, Director of the Northern Coke Research Department, Armstrong College, University of Durham, and an Hon. Member of the Association), responded.

EXCERPTS FROM "A.G.A." CONVENTION PAPERS AND REPORTS.

RUBBER BELTS: AERATION OF GAS BURNERS: STANDARDIZATION OF APPLIANCES: LOW-TEMPERATURE CARBONIZATION.

The Report of the Sub-Committee on Coke of the Carbonization Committee of the American Gas Association includes an interesting note by Mr. J. E. Cooper, General Superintendent of the Gas Department of the Utica Gas and Electric Company, on "Recent Improvements in the Art of Mechanically Handling, Sizing, and Screening Coke." He refers to the improvements in rubber-covered conveying belts. Recently, he observes, rubber belts have been offered with a rubber tensile strength of from 3500 to 4000 lbs., and belts are generally graded from this class, as a maximum, to about 1000 lbs., or lower, as a minimum, so that it is now possible for the engineer to pick out the most economical belt for any particular service and be able to determine fairly accurately the results which he will obtain from each grade of belting.

The use of a breaker strip in the belt is becoming more and more standard practice by the better manufacturers, and it is to be hoped that in the near future some standard practice will be adopted in regard to the use of safety factors for the various weights of canvas duck, thus placing each belt manufactured on a uniform design basis. A duplex system of canvas and rubber belting has been brought out with very good success. This consists of a canvas belt which is used as a power belt to transmit the load, and a separate rubber belt, used as a wear sheet, is carried on top of the canvas belt, on which the material rides. This rubber wear sheet is somewhat thicker than a regular conveyor belt cover and, since it is under no tension whatever, should naturally last much longer than standard belting.

A great diversity of opinion seems to exist as to the most economical belt speeds, most experts being divided into two classes. The first class limit belt speeds to about 250 ft. per minute and obtain their capacity by regulating the width of their belts. Their claims for this relatively slow speed is that the belts wear much longer, due to less tearing action where the material is delivered to the belt, and less degradation of material at the discharge, due to slower speed. The other class approve of speeds as high as 450 ft. per minute. However, with this design much more attention must be given to feeders and discharge chutes, in order to reduce tear on the belts and breakage of the material.

Idler pulleys are being offered in a great number of designs, manufactured with special abrasion resisting materials, such as chilled cast iron, charcoal iron, or special trade name materials. One of the better designs calls for a rubber surface vulcanized to the cast-iron surface which comes in contact with the belt and thereby resists wear to a remarkable degree. In locations where power can be saved by the use of ball-bearing idlers, these are being offered as standard equipment.

A great amount of belt wear is caused by improperly feeding the coke to a fast moving belt. This is especially true at the coke wharf, so that considerable study is being given to this feature, but as yet no generally approved method has been accepted. One coke wharf is equipped with inclined chutes (one every 3 ft.) which deliver the coke in the direction of belt travel and act as feeders when the wharf gates are open. Another plant has a travelling car arranged to be spotted in front of the gate to be opened and which feeds coke to the belt in the direction of belt travel.

An Attempt at Standardization.

Mr. Edwin W. Ely, Chief of the Division of Simplified Practice, U.S. Bureau of Standards, discussed simplified practice in the gas appliance industry. For the gas undertakings, he says, stoves are a means to an end. However, it is part of the gas companies' public relations activities to see to it that its patrons receive not only a steady flow of gas, but also efficient devices for utilizing the gas. If a stove sustains interrupted or discontinued used for whatever reason, less gas than normally will be burned. The difficulty of replacing a broken gas cock, an oven door handle, or a length of pipe, may be at the bottom of a falling-off in gas consumption.

There may be extant hundreds of sizes of handles, or there may be only one size of handle made in a thousand variations in respect of thread diameter and pitch. This not only confuses the owner of the stove, but it is a source of annoyance to the purveyors of gas, especially in those instances where a consumer moves his stove from the jurisdiction of one gas company to that of another.

A stove is a combination of elements, such as legs, ovens, cocks, pipes, bolts, machine screws, &c., each of which is now produced in a multitude of different sizes and varieties. If the American Gas Association is thinking seriously of simplification, the initial step might best be confined to one or more

of these elements rather than extended to include the entire cooking unit.

A questionnaire to all the manufacturers would elicit the needed facts concerning production and sale, upon which to build a recommendation. Should it become apparent that 80 p.ct. of the demand (for example) for the item being studied is concentrated upon 20 p.ct. of the variety offered, then it could be determined which varieties of that item are rarely demanded and therefore superfluous. A list could then be devised that contains only those sizes, &c., which the industry desires to retain because of the outstanding demand they enjoy. That list would constitute the agenda for a general conference of all interests, and would be the data finally submitted to all concerned (gas companies, manufacturers, and others) for signed acceptances.

The Simplified Practice Recommendation, bearing the names of all who had recorded their signed acceptance, would then be published by the Department of Commerce and made available to everyone who has any interest whatever in gas stoves. The schedule, as printed, and bearing a definite effective date, would be placed in care of a Standing Committee (composed of representatives of the manufacturers of stoves, distributors, and users) of the industry for study and revision once every twelve months. Thus the list would be constantly flexible in the hands of the industry, and ever susceptible of being altered to conform with current conditions, new invention, and development of the art of stove design.

With such a programme successfully launched, it would be practicable for the gas industry to develop similar recommendations covering others of the many commodities produced and used by the trade. In the course of time, much of the dead wood could be disposed of, and a great deal of "frozen capital" released for more constructive purposes.

Aeration of Gas Burners.

Messrs. O. L. Kowalke and N. H. Ceagske, of the University of Wisconsin, presented a lengthy paper on the aeration of gas burners. The following conclusions are drawn from their experiments:

1. For any given burner there is an optimum position of the orifice with respect to the throat of the injecting tube where the maximum of air entrainment and of pressure developed in the manifold is realized.

2. The entrainment of air in the injecting tube of a burner varies approximately as the square root of the density.

3. The entrainment of air in any given burner is constant for a given density of jet gas, and is independent of the pressure on the jet. Once the burner is set correctly for a given gas, the ratio of air entrained to the gas flowing from a jet will remain the same.

4. The pressure in the manifold of a burner varies directly with changes in the line pressure of the jet, but is independent of the density of the jet gas.

5. The pressure developed in the manifold is dependent on the ratios of the area of the orifice to that of the throat, and the ratio of the area of the throat to that of the ports.

6. It would seem that there can be no constant relationship between the area of the throat and that of the port which would apply to all burners; but that this relationship will change, depending on the ratio of the area of the orifice to that of the throat, the requirements of the air-gas ratio, and the pressures on the jet and in the burner manifold.

7. The scope of the tests includes only the relationships appertaining to the aeration of the burner. No conclusions can be drawn respecting the size of individual ports to meet the requirements for proper linear velocity of the combustible mixture through the ports.

The authors point out that the results of the tests may be applied definitely only to an injecting tube of the form used in the experiments.

Low-Temperature Carbonization.

In the Report of the Sub-Committee on New Coal Processing Methods, the subject of low-temperature carbonization is dealt with as follows:

During the past several years a voluminous literature on the various processes for low-temperature carbonization of coal has been published in trade magazines, books, and scientific publications. It has been contended by some that much of this publicity has not been particularly helpful to the low-temperature industry. The chief criticism of most of these articles should, perhaps, be that the major emphasis has been placed on the mechanics of the process and insufficient information has been given on the economic aspects. It is desirable, therefore, to summarize briefly some of the more obvious situations where economic conditions are such that a low-temperature process might be profitable. This should give a better understanding of the future possibilities of this method of processing coal in the United States.

It is not to be assumed from the above statements that there is no need for discussion of the mechanics of the various processes or for improvements in their operating characteristics. They are designed rather to point out the very necessary, but often neglected, fact that unfavourable economic conditions may cause the failure of the most efficiently designed and operated plant.

In general, it may be said that there are four possible economic situations where low-temperature carbonization processes may give a satisfactory return on the investment. These situations will be discussed briefly in order to show economic limitations which may prevent the successful operation of a low-temperature carbonization process.

1. In certain localities where a free-burning smokeless fuel for domestic purposes finds a ready market, it may be economically feasible to operate a low-temperature process to produce such a fuel, providing satisfactory credits may be obtained from the gas and tar. In general, the gas from such a process will be a high B.Th.U. gas and should find its best market as an enriching agent for blue water gas or a lean coal gas. Hence, this type of plant makes it almost necessary to have a public utility company interested either as a part owner or on a long-time contract to take the high B.Th.U. gas. Local agencies, perhaps those of the gas company or local fuel dealers, would dispose of a portion of the coke in the local market. The backers of the low-temperature project would have to maintain a considerable sales organization to dispose of the balance of the coke in other markets. The tar could be disposed of to refiners or, if the plant was of sufficient size, it might be profitable to work up the low-temperature tar in finished or semi-finished products. In general, a regular and substantial income from tar and gas would be essential, or the sales price of the coke would become prohibitively high.

2. Another set of conditions which may provide a satisfactory economic situation for the operation of a low-temperature carbonization plant, or more properly a complete gasification plant, is where a large manufacturing plant requires a cheap gas for heating operations such as are met in glass manufacturing, steel treating, automobile manufacturing, &c. In such a case the coal would be carbonized under low-temperature conditions to give the highest yield of tar, and the char would be converted into blue water gas or producer gas in the same or a separate piece of equipment. Conditions necessary for profit from such a plant are a local source of cheap high-volatile coal; a gas-using plant having a good daily and annual load factor; a price for the gas equal to the price of competing fuels; and a market for the tar at prices slightly higher than prevailing prices for high-temperature tar.

3. A third economic situation for profitable low-temperature carbonization may be found at mines where a company has available large supplies of non-commercial sizes of high-volatile coal. In this case the coal, which would have a value of 75 cents to $1 per ton, could be treated by a low-temperature process to make a coke or briquette which should find a market as a free-burning smokeless fuel for domestic purposes. Such a process would give a high yield of low-temperature tar, and this tar would have to be marketed at a fair price, as it would be one of the main credits to the plant. The gas would be used up in the process to carry on the carbonizing operation, or might be sold for industrial use or to a distributing gas company not too distant.

4. A fourth possibility for successful economic operation of a low-temperature process may be in combination with a steam plant. There are at least two modifications which may be satisfactory in this case. The first is the carbonization of powdered coal to produce a powdered semi-coke for firing the boiler. Such a plant would produce a large yield of low-temperature tar for sale and a considerable volume of high B.Th.U. gas suitable for enriching gas for city distribution. The second possibility is the production of a domestic low-temperature coke and the use of the semi-coke fines and the surplus gas for firing power-plant boilers. In this latter scheme the coke would be completely utilized most advantageously, since the portion sold for domestic fuel would be in the most acceptable form, while there would be no necessity for any special treatment of the fines, since they could be burned directly under the boilers. The tar would represent an important credit to the process.

Inasmuch as almost any low-temperature process is dependent to a large extent for financial success on the tar credits, it is always well to consider this phase of the subject most critically. In general, any low-temperature process must give a much higher yield of tar than is obtained in a high-temperature process. This tar is quite different in composition from high-temperature tar, and for this reason a separate or modified market will have to be devoloped in order to obtain the maximum credits. Such a tar can become of greatest use and value only in the fields of chemical industry.

Low-temperature tar may become the raw material for a very large number of organic chemicals. Research work is being done by several of the larger companies in the development of chemical markets for such a tar, and it seems safe to assume that low-temperature tar to-day will command a higher price than it did a year ago. As this price continues to advance, more and more the possibilities for low-temperature processes will open up. However, it must be remembered in all cases, that, without a satisfactory market for the other products formed in the process, no low-temperature scheme can become a paying investment.

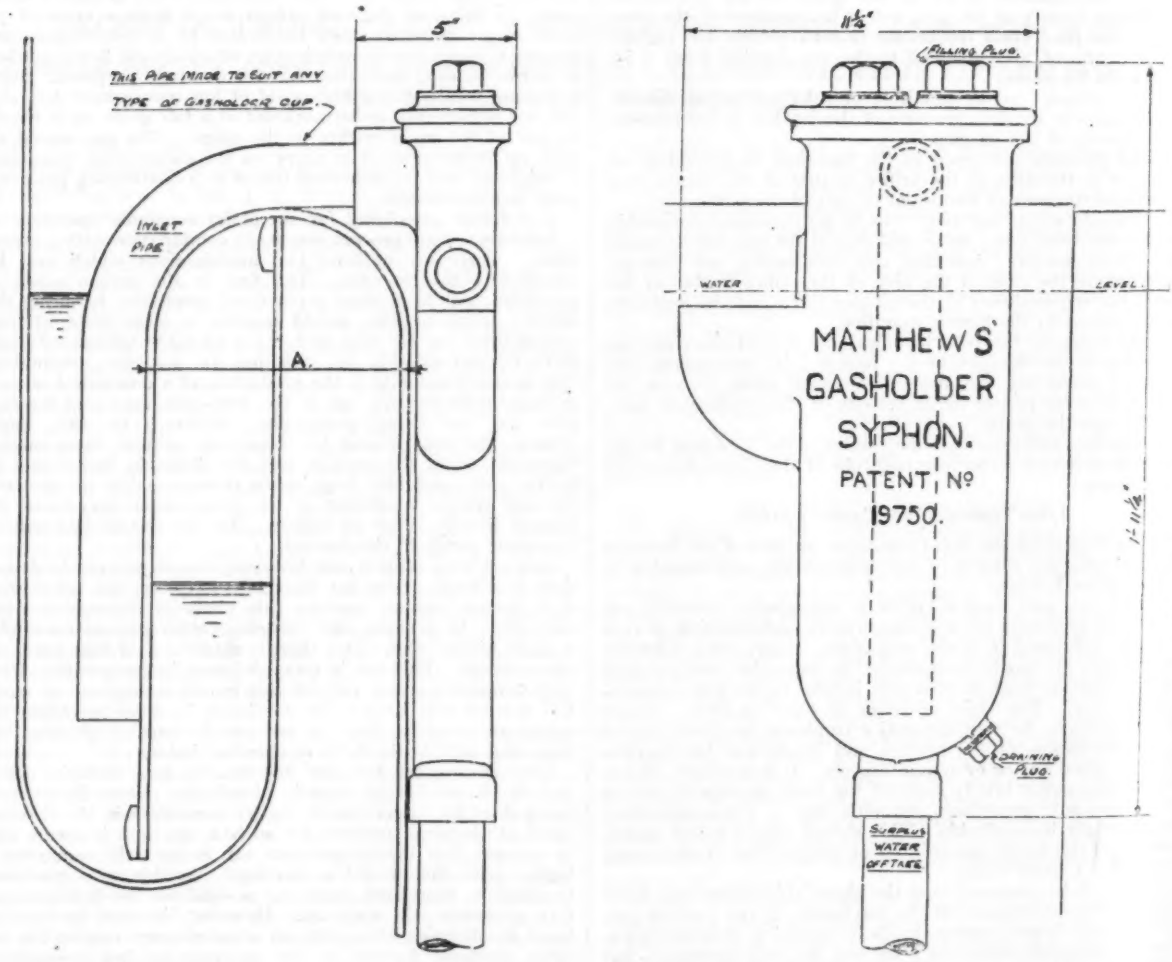
MATTHEWS' SYPHON FOR GASHOLDERS.

A syphon which will take away excess rain water from the cups of gasholders must admittedly be advantageous in maintaining the appearance of a holder from discoloration of the paint, and in allaying corrosion set up by rain water overflowing haphazard down the holder sheets. This has been achieved by Mr. Matthews, of Chertsey. It is claimed that the syphon is essential, where there has been oil treatment of the holder for preservation purposes, to prevent the oil from the cups overflowing during rainy weather, and to keep constant level. Even where no oil film is in use, the syphon fitted prevents the unsightly and corrosive overflow.

The Matthews syphon, which is made of aluminium, is of simple construction; it rests on the top of the grips, so that there is no necessity to drill the holder sheets. The illustrations show the simplicity of construction and the method of working. The syphon has been used in some instances for ten years, where there has been no question of its automatic action. It is supplied by Messrs. Alexander Duckham & Co., Ltd., who for many years past have made a special study of the question of holder preservation. Holders built entirely of steel necessitate some method of preservation, and it must be remembered that once oil is there corrosive action cannot take place.

This syphon economizes the use of oil as a preservative to a very large degree, providing that the requisite number of syphons per lift have been fitted. The following is worked out for maximum rainfall in the British Isles:

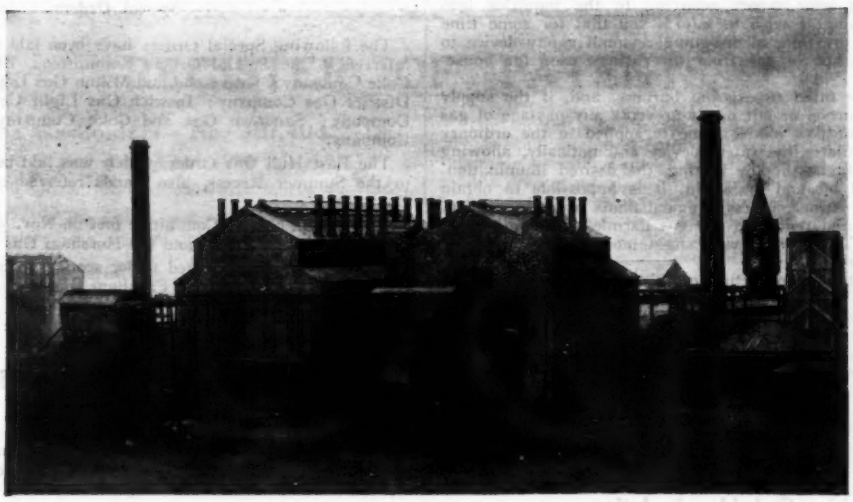
100 ft. diameter lift.	1 syphon
140 ,, ,, ,, ...	2 syphons
170 ,, ,, ,, ...	3 syphons
200 ,, ,, ,, ...	4 syphons



ARRANGEMENT OF GASHOLDER SYPHON.

RETORT RECONSTRUCTION AT BELFAST.

[From "West's Gas"]



GENERAL VIEW OF COKE TELPHERAGE SYSTEM AND VERTICAL RETORT PLANT.

The accomplishment of the recently-booked contract for the reconstruction on the new model of "C" bench of the Belfast installation of Glover-West vertical retorts will mark the climax of a policy which is a classic instance of advantage taken of the great economy in ground space inherent in the continuous system of carbonization in vertical retorts. This policy was initiated in 1911, when the contract was placed with West's Gas Improvement Company for the erection of vertical retorts capable of producing 2½ million c.ft. of gas per day, which was followed in the next year by a contract for another installation, of a daily capacity of 5½ million c.ft. In 1923, the reconstruction on the new model was commenced with "A" and "B" benches of the first installation, resulting in increasing their joint daily capacity to 5½ millions. "D" bench followed in 1927, and, with the reconstruction of "C" bench, the total daily gas-making capacity will be 16½ million c.ft. The area occupied by these retort houses is 19,570 sq. ft., giving a daily gas-making capacity of over 840 c.ft. per sq. ft. of ground area, a figure which compares more than favourably with that for any carbonizing plant within our knowledge.

Benches "A" and "B" together make up the first installation of Glover-West vertical retorts. Originally each of these two benches contained five settings of the old 27-in. by 10½-in. retorts, eight retorts to a setting, the whole installation, therefore, comprising eighty retorts. In the process of reconstruction, these were replaced by modern retorts 33 in. by 10 in. at the top and with a bell-shaped expansion at the base for the improvement of the steaming process. Each bench is served by a powerful double-roll coal breaker, which reduces coal to a grade suitable for carbonization and feeds it into an endless line of gravity bucket conveyor which passes up the end of each bench, along its length at the top, dumping the coal into storage bunkers above the retorts, and returning by the same route. The coke discharged at the base of the retorts is carried away in West's coke conveyors, transported to automatic skip fillers at the end of the retort house, and received and carried away to hoppers, screens, and storage ground by means of a system of telpherage. A fuel-gas producer of the step-grate pattern serves each setting, and waste heat in the flue gases passing to the chimney is reclaimed by waste-heat boilers in which steam is raised for steaming the retorts, power generation, and general works purposes.

The second installation, comprising benches "C" and "D," is directly adjacent to the first in a longitudinal direction. Ten settings of eight retorts each are contained in each bench. In the case of bench "D," as in "A" and "B," 33-in. by 10-in. new model steaming retorts have replaced the earlier pattern, and the same will apply to the reconstruction of bench "C," about to be put in hand.

The details of the reconstruction follow very closely those described in the brochure issued in connection with the visit of the Institution of Gas Engineers to Belfast in June, 1923, and published in the "JOURNAL," Vol. 163, p. 80. Among the differences is the system of waste-heat recovery, which in the case of both "D" and "C" benches takes the form of the induced-draught, fire-tube boiler, perfected by Messrs. Spencer-Bonecourt for this purpose. The contract also includes for the provision of a 300-KW. steam-driven electric generating set in order to make the best possible use of the waste heat recovered.

PROGRESS OF GAS LIGHTING.

From a Report issued by the Papers Committee of the Illuminating Engineering Society.

There are various developments in the field of gas lighting worthy of record, particularly in connection with street-lighting equipment. A feature has been the use of multiple-mantle burners, either arranged symmetrically round a centre or mounted more or less in a straight line. Such burners have been successfully applied, together with reflectors of the specular or prismatic type, and should prove of assistance to public lighting authorities in carrying into effect the requirements embodied in the British Standard Specification for Street Lighting. The publication of this specification has caused attention to be directed to methods of increasing the minimum illumination of streets by means of directive refractors. A notable case is furnished by Doncaster, where Mr. R. Watson, by using refracting plates, has brought several existing installations within the specification, and has greatly improved the general effect. The use of cluster and line fittings has also been extended.

Continued progress has been made in domestic lighting equipment, more particularly in the production of well-designed but inexpensive gas burners. These burners, which can be obtained with superheaters, are now widely used, and accuracy in their manufacture is being insisted upon and achieved. Several new patterns of decorative semi-indirect lamps for interior use have been introduced. The use of non-corroding platings and alloys for gas fittings, such as pendants, brackets, &c., has also been the subject of experiment, and seems likely to lead to considerable improvement. The use of artificial silk for the manufacture of mantles is becoming increasingly usual, with beneficial results. The gas industry has been co-operating with electrical organizations in the standardization of sizes of globes and heat-resisting properties of glass.

New forms of distance control have been introduced, notably one type based on the Bowden-wire principle, which may be expected to popularize this feature of gas lighting.

Southern Association of Gas Engineers and Managers.—A General Meeting of the Association will be held on Friday, Nov. 22, at 2.15 p.m. at the Hotel Cecil, Strand, under the Presidency of Mr. W. E. Dean. Mr. F. J. Pearce, of Mill Hill, will present a paper on "Some Notes on the Complete Gasification Plant at Mill Hill." At the termination of the meeting, afternoon tea will be served.

CORRESPONDENCE.

[We are not responsible for opinions expressed by Correspondents.]

Safety Device for Gas Burners.

SIR,—Having read your report referring to the inquiries into accidental gas poisoning, I wish to inform you that for some time past I have devoted my time to designing a small safety device to prevent accidental escape of gas from the fittings used for household lighting.

This device can be fitted to existing burners, and, if the supply cock is accidentally turned or left on, it prevents any passage of gas through the burner until a naked flame is applied in the ordinary way. This flame actuates the safety device automatically, allowing the gas to pass through, thereby getting the desired illumination. If the gas is turned off and on again, it is impossible to obtain any gas through the burner, unless a naked flame is again applied, thereby illuminating and rendering the gas harmless from a poisoning point of view. This device, with slight modifications, can also be applied to gas cookers.

The maximum cost of manufacture of this mechanism, in quantities, would be about one penny each, and it would bring gas lighting for household purposes to the same level of safety as electricity. If any of the gas undertakings are interested in this matter, further particulars may be had on application to the address below. I am an engineering designer by profession, and I can assure you that this device is practical and is designed to meet all requirements.

9, *Mayfield Road*, S. HOWARD.
Plaistow, E. 13,
Oct. 30, 1929.

Repairing Gasholders in Action.

SIR,—A correspondent in the "JOURNAL" recently asked for suggested methods of repairing a gasholder tank which was leaking. May we draw his attention to our repair bolt advertised in the "GAS JOURNAL" Calendar and Directory, which can be used for stopping small holes or fixing plates over large areas without putting the tank out of action?

Royill Works, ROYILL MANUFACTURING COMPANY.
48, *Royal Hill, Greenwich, S.E.* 10,
Nov. 1, 1929.

PARLIAMENTARY INTELLIGENCE.

[From Our Special Correspondents.]

HOUSE OF LORDS.

Special Orders.

The following Special Orders have been laid before the House and referred to the Special Orders Committee: Bilston Gas Light and Coke Company; Gravesend and Milton Gas Light Company; Horley District Gas Company; Ipswich Gas Light Company; Prescot Gas Company; Sandown Gas and Coke Company, Ltd.; Sutton Gas Company.

The East Hull Gas Order, which was laid before the House prior to the Summer Recess, also stands referred to the Special Orders Committee.

The Special Orders Committee met on Nov. 5 to consider the Bury St. Edmunds Gas Order and the Horsham Gas Order.

Plans have been deposited under section 10 of the Gas Regulation Act, 1920, in respect of the Farnham Gas Order.

HOUSE OF COMMONS.

Special Orders.

The following Special Orders have been presented to the House and ordered to lie upon the table; Bilston Gas Light and Coke Company; Gravesend and Milton Gas Light Company; Horley District Gas Company; Ipswich Gas Light Company; Prescot Gas Company; Sandown Gas and Coke Company, Ltd.; Sutton Gas Company.

Debate on Profit-Sharing.

Mr. A. N. Skelton, Conservative M.P. for Perth, having drawn a place in the Ballot for Private Members' Motions, has given notice of his intention to move a Resolution on Nov. 20 calling attention to the social and economic value of industrial co-partnership and profit-sharing.

LEGAL INTELLIGENCE.

WATERLESS GASHOLDER COMPANY, LTD.

Petition for Extension of Patents.

In the Chancery Division, before Mr. Justice LUXMORE, the hearing was commenced on Tuesday, Oct. 29, of an action by John le Boutillier, Ltd., of 13, Rood Lane E.C., and the Waterless Gasholder Company, Ltd., of the same address, in which they petitioned for an extension of letters patent relating to waterless holders. Petitioners' case was that they were interested as assignees or licensees under each of the following letters patent: No. 16,184, of 1914, dated Sept. 4, 1913, for "Improvements in and relating to Gasholders;" No. 16,472, of 1914, dated Oct. 25, 1913, for "Improvements in and relating to the Erection of Gasholders with Disc-Shaped Closing Members;" No. 16,473, of 1914, dated Sept. 2, 1914, for "Improvements in and relating to Packing and Sealing Means for Gasholders having a Disc-Shaped Closing Member or Crown." Each of the patents was originally granted to the Maschinenfabrik Augsburg-Nurnberg A.G., of Nurnberg, Bavaria. They asked the Court to extend the patents for another ten years. It was stated that four other petitioners had retired from the proceedings.

The Hon. STAFFORD CRIPPS, K.C., appeared for the petitioners, and stated that the Maschinenfabrik Augsburg-Nurnberg A.G., were the inventors of a type of gasholder and of improved methods of erecting and manufacturing it. These inventions were entirely new and of great utility. Owing to the outbreak of war in 1914, the letters patent, being then owned by alien enemies, came under the control of the British Government. On Sept. 14, 1923, a preliminary commercial agreement was, by order of the Board of Trade, entered into between the Maschinenfabrik Augsburg-Nurnberg A.G. (called "M.A.N.") and the Tankless Gasholder Company, Ltd., but the negotiations failed, and the agreement was never executed. However, on March 16, 1925, John le Boutillier, Ltd., having agreed with "M.A.N." for an assignment of the letters patent, the consent of the Board of Trade was secured, with certain provisions which the assignees had observed.

The Waterless Gasholder Company, Ltd., added Counsel, was registered in April, 1927, with the object of exploiting inventions that formed the subject of the licences. The Company had a capital of £5000 in £1 shares, the whole of which were issued for cash; 10s. on each share having been paid. Every effort had been made to procure orders, and large sums, amounting in all to over £20,000, had been spent on special plant for the erection of the holders. Some difficulty had been experienced in persuading users to depart from the old type, and, at present, only thirteen waterless holders had been ordered in this country, of which three had been completed.

But for the efforts of the petitioners, it was improbable that the industry of constructing this type of gasholder would ever have been introduced into this country; and, by so doing, the petitioners had provided employment for British labour, and would continue to do so. They were willing to agree that, in the case of all holders manufactured here, British materials would be used to the fullest extent. In the circumstances, the petitioners asked for an extension of the letters patent giving them an exclusive right of exercising and vending the inventions for another ten years, alleging that unless they had that right for at least another five years, they would not be reimbursed and remunerated for their past efforts.

The opposition to the petition came from Dry Gasholders, Ltd., a private Company formed in December, 1927. The petitioners had introduced a new industry into this country; and although it was quite true they knew there was a chance of the patents expiring in 1929, they also knew that there was a possibility of their establishing a business around an exceptional invention, with the result that the patents might be extended, seeing that the gas industry had been revolutionized.

Evidence was then heard at length.

RIVER POLLUTION AT LLANDRINDOD WELLS.

Gas Company Fined.

The case brought by the Wye Fishery Board against the Llandrindod Wells Gas Company, who are alleged to have caused certain poisonous liquid to flow into the River Ithon, poisoning thousands of fish, was resumed at a special sitting of the Llandrindod Wells magistrates on Nov. 2 (Dr. J. MORGAN EVANS in the Chair).

Counsel were: For the prosecution, Mr. A. J. LONG, Birmingham (instructed by Messrs. Gwyn James & Son, Hereford); for the defence, Mr. A. TREVOR HARRIES, Swansea (instructed by Messrs. H. Oliver & Co., Llandrindod Wells).

Dr. *Wilfrid Rushton*, St. Thomas's Hospital Medical School, London, asked why it was that no coarse fish were poisoned, replied that trout and salmon-parr were much more sensitive to poison than coarse fish.

Frederick William Croxton, Manager of the Gas-Works, said the pipes which carried the ammoniacal fluid to the place where it was

disposed of, burst last February just over the little stream where it was most exposed to the weather. One of the workmen repaired the pipe by putting in a small piece which had a plug screwed into it. That plug was rusted and had never been moved. Nothing was pumped through the pipe during the week ended Aug. 24, as the tanks were not full.

Gilbert Lewis, the workman who repaired the pipe, corroborated, and said there was no leak of any consequence after the repair.

The CHAIRMAN (Dr. J. Morgan Evans) said that by a majority they found the case proved, and had decided to impose a fine of £10.

Mr. LONG asked for substantial costs, saying the Wye Board had been put to considerable expense, and the bench awarded 25 guineas.

REGISTER OF PATENTS.

Waterless Gasholders.—No. 307,403.

WAGNER, R., of Berlin-Charlottenburg.

No. 7368; March 6, 1929. Convention date: March 6, 1928.

The patentee, in view of the weight and rigidity necessary in the roof and lantern of a large disc holder, proposes to substitute for a complete roof a ring projecting only partly over the piston; the remainder being merely covered with a net or lattice work which will not retain rain or snow and will offer no resistance to the passage of air or gas. Syphons are provided to lead off accumulated water from the disc to a sump.

Gasholders.—No. 316,539.

M.A.N. A. G., Nürnberg.

No. 6270; Feb. 26, 1929. (Patent of Addition to No. 301,016: Nov. 23, 1927.)

Convention date: July 30, 1928.

This invention concerns a modification of the gasholders described and claimed in the main patent No. 301,016 [see "JOURNAL," vol. 186, p. 41]. In the telescopic holder without water tank and cup and with sliding seal according to the main patent, special devices have to be provided for the supply of the lubricating and sealing material to the sealing space, since the seal almost exclusively moves up and down with the cylindrical telescopic parts and therefore is not directly accessible.

According to the present invention, the lubricating and sealing material is supplied by pumps which are either mounted directly on the tower scaffolding and at such a height that they can be connected to closable openings of a seal which lies opposite to them when the telescopic parts are raised, or which are mounted on the cover of the holder and are then permanently connected with the pressure spaces by means of yielding or movable conduits.

Valve Mechanism of Dry Meters.—No. 318,335.

MCROBBIE, W., of Edinburgh.

No. 18,743; June 28, 1928.

This invention relates to dry gas meters, and has for its object to improve the construction or arrangement of the valve mechanism in order to meet the demand for a meter of maximum capacity for given dimensions.

In dry gas meters, states the patentee, the measuring compartment includes a vibrating diaphragm, the stroke of which is limited, *inter alia*, by its diameter, while the capacity of the meter depends upon the length of stroke and the diameter of the diaphragm. The diaphragm transmits its motion to an arm projecting from a vertical spindle in front of the diaphragm; and in order to permit the diaphragm to describe a greater stroke, it is known to crank the spindle so that it clears the diaphragm and so that its upper and lower pivots or bearings are brought nearer to the medium plane of the diaphragm.

It is usual to provide two vibrating diaphragms in each meter, and the two spindles which are oscillated by the diaphragms are connected by valve gear to a pair of valves which control the inlet and outlet of gas to the meter. The valve gear comprises a meter shaft having a single crank connected by two valve rods to the two valves, which are positioned so that their lines of motion are at an angle of 90° to each other. The invention consists in decreasing the angle of the lines of motion between the valves below 90° to not less than 65°.

Stuffing Boxes for Gas Meters.—No. 319,230.

PEEBLES, W. C., and PEEBLES & Co., LTD., both of Bonnington.

No. 17,306; June 15, 1928.

According to this invention the packing of the stuffing box of a gas meter spindle is constituted by cork either in its natural condition or treated by heat or the like, and impregnated or not with a lubricating medium.

The stuffing box proper may be of any convenient shape or size.

Valve Actuation.—No. 319,427.

HUMPHREYS & GLASGOW, LTD., of Victoria Street, S.W. 1, and FRYER, J. E. G., of South Woodford.

No. 19,377; July 4, 1928.

This invention relates to mechanism for transmitting motion from one reciprocating member to another, and it has for its object to provide for the automatic locking of the members against other than intentional return movement after they have travelled predetermined distances and the driving effort ceases; this occurring with movement in one direction or the other or in both directions.

The invention further provides, in combination with the above, for co-equal motion of both members for a given distance and thereafter for a modified movement of the driven member relative to that of the driving member.

The patentees point out that the mechanism, which is described in detail, is capable of various applications. For example, in specification No. 276,754 [see "JOURNAL," Vol. 180, p. 271] there are set forth the difficulties of operating counterbalanced valves of single or double gate type, to overcome which it is there arranged that after the valve has come to rest in its closed position, the momentum of the counterweight stresses a spring, after which the mechanism is automatically locked in position as by a bolt so that the pressure of the spring is utilized to keep the valve fluid-tight. This entails the actuation by hand or foot of the locking device to release the mechanism. The operating means of such a valve can be replaced by mechanism according to the present invention.

Wash Boilers.—No. 319,675.

REDFERN, W. D., of Ilkley.

No. 18,227; June 23, 1928.

This invention consists in the arrangement of a flame deflector placed in close proximity to the outside edge of the pan bottom.

The deflector ring may be of substantial thickness—say, about ⅛ in.—and about 2 in. in depth. The gas flame is in actual contact with the ring, and deflects the flame back on to the sides of the pan; the efficiency being, it is claimed, much improved thereby.

Lighters for Coke Stoves.—No. 319,914.

KEITH & BLACKMAN CO., LTD., and KEITH, G., both of Farringdon Avenue, E.C. 4.

No. 26,257; Sept. 13, 1928.

This invention relates to gas burner fittings for domestic grates, boiler stoves, and the like, burning coke or other solid fuel and having provision for igniting the solid fuel by the flame from a bunsen burner fixed beneath the grate. The patentees remark that it is a drawback of previously known arrangements that it is possible to leave the gas burning through inadvertence. This drawback is overcome by the present invention, which provides for shutting off the gas automatically after the solid fuel is well alight.

In accordance with the invention there is disposed immediately beneath the grate bottom a thermostatic device consisting of an outer tube of metal with a large coefficient of expansion and an inner rod of low coefficient of expansion, and the difference of expansion is used to actuate a trip device, which, after sufficient heat has been radiated from the ignited coke, permits operation of a self-closing valve to cut off the supply of gas to the burner. To ensure automatic operation, the valve is self-closing under the action of a spring, when liberated by the trip device; the valve being of screw actuated type but lacking a stuffing box.

The features are fully described and illustrated.

Covers for Purifiers.—No. 319,956.

MILES, R., ALLOTT, G. W., and NEWTON CHAMBERS & CO., LTD., all of Thorncliffe.

No. 29,988; Oct. 17, 1928.

This invention relates to joint-making packings for purifiers where comparatively high pressures have to be contended with.

According to the present invention, the patentees propose to use a strip of rubber or other material of substantial section, through which a hole is arranged axially to receive a rigid rod which is secured to the cover by means of hooks or eye-bolts the heads of which are placed in enlarged recesses provided at intervals along the jointing material, so as to lie transversely to the bore of the jointing material, and thus to receive the rigid rod when inserted into the hole in the jointing material; the threaded stems of the bolts extending through holes in the cover to receive nuts or other fastenings on the outside of the cover.

With this arrangement a simple gas-tight joint is provided, and one which may readily be made and unmade by unskilled labour without the joint being impaired. The fixing of the joint in the first place is considerably facilitated by the ease with which the rigid rod can be passed along the bore of the tubular strip and by the latitude, as regards position, allowed by the hooks or eye-bolts.

Mouthpieces and Standpipes.—No. 319,973.

ALDRIDGE, F. D., of 39, Victoria Street, S.W. 1.

No. 31,958; Nov. 2, 1928.

This invention relates to standpipes made in sections, each having a valve-controlled connection with an adjacent retort mouthpiece. Heretofore such sections have either been joined to the mouthpiece

by short branch pipes or bolted directly thereto. Provision has also been made at the joints between the different standpipe sections whereby relative movement of the sections is permitted to compensate for the expansion of the heated brickwork.

Now this invention has for its object to provide a construction of retort mouthpiece and standpipe which will reduce the cost of manufacture as compared with previous constructions, and consists in forming the standpipe sections integral with their respective adjacent retort mouthpieces. The joints between the different sections of the standpipe may be of the spigot and socket type; and if desired the halves of the sockets may be made detachable to facilitate erection, or the adjacent ends of different sections may simply abut and be closed at the joints by jointing sleeves of flexible material.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for Oct. 16.]

Nos. 30,288—31,071.

BAKER PERKINS, LTD.—"Exhaust devices for indirect-heated gas-fired ovens." No. 30,903.
JOHNSON, H.—"Gas burners." No. 30,732.
POWER GAS CORPORATION, LTD.—"Mixture of water gas and producer gas." No. 30,325.
RAMBUSH, N. E.—See Power Gas Corporation, Ltd. No. 30,325.

[Extracted from the "Official Journal" for Oct. 23.]

Nos. 31,072—31,854.

BEAZLEY, T. A.—"Packing for stuffing-boxes." No. 31,600.
BRITISH GOODRICH RUBBER COMPANY, LTD.—See Beazley, T. A. No. 31,600.
BURRELL, W. A.—"Automatic gas supply controlling valves." No. 31,645.
DAVIES, A. E.—"Gas fires." No. 31,658.
HARRISON, J. S.—See Burrell, W. A. No. 31,645.
HENSHAW, D. M.—"Removal of sulphur from fuel gases." No. 31,246.
HOLMES & CO., LTD., W. C.—See Henshaw, D. M. No. 31,246.
REGENT MALLEABLE CASTINGS, LTD.—See Davies, A. E. No. 31,658.
SULZER FRÈRES SOC. ANON.—"Stuffing-boxes." No. 31,755.
WATSON, S. G.—See Henshaw, D. M. No. 31,246.

[Extracted from the "Official Journal" for Oct. 30.]

Nos. 31,855—32,618.

ALLIN, J. M.—"Control of gas burners for cooking apparatus." No. 32,422.
COKE AND GAS OVENS, LTD.—"Transmitting heat to driers, heaters, &c." No. 31,929.
DOLPHIN, J.—"Operating means for gas regulating valves." No. 31,870.
FORSTER, J. D.—"Coin-freed gas meters." No. 32,219.
HOWLETT & CO., LTD., M.—See Dolphin, J. No. 31,870.
LILGE, F.—"Gas burners for furnaces." No. 32,071.
METROPOLITAN GAS METERS, LTD.—See Forster, J. D. No. 32,219.

MISCELLANEOUS NEWS.

GAS POISONING COMMITTEE.

[For earlier evidence, see "JOURNAL" for Oct. 16, 23, and 30.]

The Committee appointed by the Government to inquire into the danger of accidents by coal gas held a further meeting at the Offices of the Board of Trade, Whitehall, on Thursday, Oct. 31.

Mr. *George Evetts*, Consulting Gas Engineer, Palace Chambers, Westminster, and Director of three Gas Companies, gave figures indicating the growth of the use of water gas during the past three periods of ten years, and pointed out that, whereas the increase in the total amount of gas manufactured during the thirty years had been 127 p.ct., coal gas had increased by 101 p.ct. and water gas by 612 p.ct.—the net effect being that, whereas in 1898 the percentage of water gas averaged over the whole country a little more than 5, in 1928 it was a little over 16. It was probable, added witness, that the amount of CO on the average in 1898 was 8¼ p.ct., while in 1928 it was 12¼ p.ct.

In answer to the Chairman, witness emphasized the point that the increase in the percentage of water gas used during this period had resulted in 2,360,000 tons of coal less being required, and 1,930,000 tons of coke less being put on to the market, so that the gas undertakings had thus handled 4,290,000 tons less of solid fuel. These figures excluded the effect of steaming in vertical retorts. If the manufacture of water gas were completely abolished, it would thus be seen that the gas undertakings would have to handle very large extra quantities of coal and coke. It was further pointed out that, if all water gas plants now in existence were scrapped, owing to the manufacture of water gas being prohibited, it would mean a very heavy burden in capital expenditure for the gas industry in providing new coal carbonizing plant to take the place of the water gas plant; the cost running into many millions sterling. Furthermore, it would mean a very large extra quantity of coke being put on the market, a proportion of which would be unsaleable; and even if the whole future coke production were reduced in market value by only 2s. per ton as a consequence, the result would be a loss to the industry of nearly ½d. per therm.

Mr. Evetts added that other disadvantages attending the abolition of water gas would be as follows: (*a*) The trend of development and invention would be jeopardized, because a great deal of research in the industry involved the production of CO; (*b*) many most modern and up-to-date plants relied on the steaming of vertical retorts, and these would have to be worked with reduced efficiency; (*c*) apart from heavy cost of new plant, some gas undertakings might be compelled to find new sites for their works, owing to the larger amount of space being required which was not available at present, in many cases; (*d*) the emergency value of water gas would be lost, for, if these plants were not employed regularly, no gas undertaking could afford to instal them, and, therefore, emergency permission to use them would be of no practical value; (*e*) flexibility of production would cease—at present, by the use of water gas plant, solid or gaseous fuel could be produced according to the needs.

Answering questions as to the suggested reduction of 2s. per ton of coke through the larger quantity being available owing to the abolition of water gas plants, Mr. Evetts said it was probable that the reduction would be a larger one on the average, and that in some districts coke would become unsaleable to a considerable extent, owing to the large quantities available. Even an increase of 10 p.ct. in the quantity of coke available would make an enormous difference in the price that could be obtained for it.

Questioned as to the processes that have been mentioned at previous sittings of the Committee for the removal of CO, Mr. Evetts said he had had no experience of them; and though he had heard of experiments and researches, and had seen figures of cost of doing this varying from 6d. to 13d. per 1000 c.ft., he was not aware whether this included capital cost.

Discussing the possibility of strong odours and irritants in gas for domestic purposes, Mr. Evetts expressed the view that it was quite unnecessary to give any stronger odour to gas than that which it now had, and must of necessity have; and he said he held the view that no useful purpose would be served by imparting more characteristic smells or irritants into gas. Apart from the effect of such irritants upon the general health of gas users, there was also the possibility of a deleterious effect upon plant, mains, services, and meters; and it might well be that the combined ill-effect of such gases on the services and meters would outweigh any problematic advantage.

Referring to leakage, witness expressed the view that the amount of gas actually leaking from mains and services in the public highways was trifling. From his experience, he would say that it was not unreasonable to put the amount at less than 1 p.ct.

Questioned as to the possibility of improved methods of laying mains, Mr. Evetts said it was difficult to suggest how the present system could be improved. Even if all gas mains were laid under the footways, there would be no guarantee that leakage would not occur. Perhaps one of the best methods of laying mains would be under the footway, close to the surface, with gratings above at intervals, so that any leaking gas would have a way out; but this was Utopian.

Speaking of the small danger from leaking mains, the attention of the Committee was called by Mr. Evetts to one district in which he is interested where there are 85 miles of mains and nearly 16,000 consumers, and there has been no case of accidental coal gas poisoning within the memory of the existing officials, many of whom have been there forty years.

Witness agreed that there was more danger from internal leakages than from leakages in mains and services, owing to the fact that defective work was often done when the gas undertaking did not do it, and it would be a difficult task for the gas undertaking to be responsible for the work of others, or even to compel the gas undertakings periodically to inspect all premises supplied by gas. A wholesale system of inspection would be an enormous task, owing to the fact that there were approximately 9 million houses supplied with gas. It would mean in certain cases interference with plaster, floor boards, and often the structure of the building; and, even if

the gas undertakings were willing to carry out this work, there would inevitably be objection by householders. At the same time, the need for inspection, as far as it could be carried out without interference, was thoroughly appreciated by the gas industry, and was being given effect to as far as possible. The gas undertakings were also extending their business every year so far as piping houses and supplying apparatus was concerned. Indeed, it was becoming the custom of the consumer to look automatically to the gas undertaking for such work. Nevertheless, it was doubtful, added Mr. Evetts, whether any form of compulsory inspection would be appreciated by the consumers; and he felt it much better for the official of the gas undertaking to enter the house for some other purpose and then, perhaps, draw the attention of the consumer to such defects as might be found to exist. Further, too much inspection on the part of the gas undertaking might tend to make the user more careless.

Referring to safety meters, Mr. Evetts said that, after consideration of this matter, he had come to the conclusion that they were not suitable for introduction into this country. Such a meter was an additional complication; the consumer would have to visit the meter twice a day, and it should not be forgotten that there was a perfect safety device to hand—viz., the main cock on the meter. Moreover, the introduction of what was, after all, a delicate piece of apparatus would involve the replacement of 9 million meters.

Finally, Mr. Evetts expressed some views with regard to safety taps, and said that, though he had seen some, he had no practical knowledge of their working. There was, however, no guarantee that they would function correctly for any length of time; and again, to be effective, it would mean the replacement of some 25 million taps.

The chief points of improvement, concluded Mr. Evetts, which could be effected, whether dealing with internal or external complaints, were the continuation of the methods of training gasfitters and staff, improved methods of inspection of material before being sent out, the development of showrooms and service generally, to encourage consumers to look to the gas undertaking to do all the necessary work, and the education of the consumers to take an intelligent interest in the gas supply, with the exercise of more than average precaution.

The Committee adjourned until Tuesday, Nov. 5.

20-TON STANDARD WAGONS.

Duckham Report Proposals.

The Standing Committee on Mineral Transport, appointed on Feb. 17, 1927, have issued their first report to the Minister of Transport and the Secretary for Mines, which is published by H.M. Stationery Office, Adastral House, Kingsway, W.C. 2 [Cmd. 3420, price 2s. 6d.]. Sir Arthur Duckham is the Chairman of the Committee, whose terms of reference were:

> To review the equipment available in connection with the transport of coal from the coalfields to the ports and internal markets of the country, and the methods of conducting such transport, and, with special reference to the recommendations of the Royal Commission on the Coal Industry (1925), to devise means of promoting such improvements in that equipment and its use as will lead to the greatest efficiency and economy in transport, and be of mutual advantage to the coal mining industry and the transport agencies; to report to the Minister of Transport and to the Minister of Mines upon the steps taken, and upon any further measures necessary from time to time to bring about desirable alterations, and generally to watch over this matter and the progressive realization of the economies and improvements which the report of the Royal Commission considers possible.

For the necessary preliminary inquiries three Sub-Committees were formed, the first dealing with the present facilities for handling coal at terminals, the second with the time occupied by wagons in transit and causes of delay, and the third with the ownership and types of coal wagons and the steps being taken to provide wagons of larger capacity.

The report of the Committee contains important recommendations for the adoption of 20-ton wagons as standard after Jan. 1, 1932, for Government assistance through the Development Act to enable terminals and sidings to be modernized to deal with 20-ton wagons, for higher demurrage and siding rents to be charged in certain areas to prevent the undue detention of wagons, for the provision of sales depôts for coal at railway terminals, for the pooling of mineral wagons, and for the reduction of railway rates for the conveyance of coal in large consignments and in high-capacity wagons.

COMMENTS BY THE ASSOCIATION OF PRIVATE OWNERS OF RAILWAY ROLLING STOCK.

The following comments on the report are issued by Mr. Philip Gee at the request of Mr. C. H. Taynton, Secretary of the Association of Private Owners of Railway Rolling Stock:

The great error into which the majority of the Committee has fallen is to recommend a form of compulsory pooling, though inevitably those members of it who really possess intimate practical knowledge of the coal trade through being actively engaged in it, either as coal owners or merchants, expressly disassociate themselves from that recommendation. Pooling or common user of wagons of a voluntary nature among collieries is practised already where various collieries are amalgamated under one control or ownership; it is on the increase, and is proving a success because the wagons are under one control, and natural lines of development are being followed. As many colliery-owned wagons are already operating in so-called pools of that nature, the process should have been encouraged to continue naturally. Even the Samuel Commission (on whose recommendations the Duckham Committee was formed) expressly rejected any scheme of compulsory pooling of privately owned wagons, and suggested instead that the railway companies should offer inducements by way of rebate, or otherwise, to wagon owners to pool their wagons voluntarily.

Any form of compulsory pooling is undoubtedly a mistake. If compulsion is applied at all, it should be applied to the railway companies to make them offer adequate inducements to wagon owners to form voluntary pools where practicable. The objections to compulsory pooling would outweigh the advantages, however substantial. But, according to the railway companies themselves, even the advantages are practically *nil*.

Compulsory pooling must lead to considerable additional expense in another way by necessitating the formation of entirely new organizations with large clerical staffs to control the pools and allot the wagons. Stoppages, extra cost, and delays must inevitably be occasioned among contributors to the pool, none of whom would be able to rely upon being supplied with the number and type of construction of wagons essential to his particular trade, while the running of the wagons in traffic must deteriorate, because a pool organization cannot follow them up as efficiently as individual owners do. The question of repairs to compulsorily pooled wagons also presents considerable difficulties, and there would be a great deal more expense and delay than under the present system.

On the subject of larger wagons, it is satisfactory to note that the Committee recognizes that sufficient facilities do not at present exist at loading and unloading points for the general use of large-capacity wagons, and that under existing conditions, as the report puts it, "the 12-ton wagon is the most suitable for general use."

CHIPPENHAM COMPANY TO BE TRANSFERRED TO BATH UNDERTAKING.

Advantages to Consumers and Shareholders.

The stockholders of the Chippenham Gas Company have unanimously decided, at an extraordinary meeting, to transfer their undertaking to the Bath Gas Company.

The Bath Gas Company is a most successful one, and its supply is about the third cheapest in England. Both the stockholders and the consumers in Chippenham are expected to benefit by the transfer, and the consumers particularly. The town will eventually be supplied from a high-pressure main running from the Bath Works to the Chippenham Works, when the latter will close down so far as the actual production of gas is concerned. It will, of course, be possible to serve the villages between the two towns.

The Gas Company at Corsham, some four miles from Chippenham, and nine from Bath, is also being taken over at the same time by the Bath Company.

The transfer is not expected to take place at any rate until the New Year, and will take the form of an exchange of stock. At the present time the Chippenham Company is paying 10, 7. 6, and 5 p.ct., according to the stock held, but, by law, the Bath Gas Company is not allowed to pay more than 5 p.ct. Such is the position of the Bath Company, however, that holders of Chippenham Gas Company stock will receive Bath stock more than equivalent to their present holding. For instance, the holder of £100 worth of Chippenham 10 p.ct. stock will receive more than £200 worth of Bath 5 p.ct. stock.

A REDUCTION IN PRICE.

The stockholders will, therefore, be satisfied, and the consumers in Chippenham will also benefit, because it is certain that the price of gas to them will be reduced. The present price of gas in the town is 10½d. per therm, while the charge at Bath is 5½d. per therm.

The necessary agreement, having been signed by the two Companies, will be forwarded to the Board of Trade, who will satisfy themselves that the transfer will not act to the detriment of either stockholders or consumers before giving their sanction.

Provision is made in the terms of transfer for the payment of compensation for loss of office to the Directors of the Chippenham Company, the Auditors and the Secretary and Manager (Mr. Arthur S. Helps), who will retire when the amalgamation takes place. With this exception the existing staff will be taken over. Some time must of necessity elapse, even after the actual transfer, before the Chippenham Works will cease to produce gas.

HISTORY OF CHIPPENHAM COMPANY.

The Chippenham Gas Company was established by deed of settlement in 1834 to serve the Borough of Chippenham; registered as a limited Company in 1876, and incorporated by Special Act in 1904, when the present works were built. The amount of stock issued is £24,000, and the amount authorized £41,000. The Company is undoubtedly one of the most successful in Wiltshire, and the output of gas has shown a steady annual increase. The present output, which is still increasing, is 65 million c.ft. yearly, having been just doubled in the 22 years in which Mr. Helps has been the Company's Manager. The figures for the current year so far show an increase of 9 p.ct. over those of last year, which in turn were 8 p.ct. above those for 1927. Chippenham is a growing town, with a population of about 8500.

Mr. A. S. Helps, who was appointed as Manager of the Chippenham Gas-Works in March, 1907, is a native of Bath, and as a young man served for 17 years with the Bath Gas Company. After being at gas-works at Croydon and Caterham, he went to Chippenham. The annual output by the Company then was 34 million c.ft. For many years past, under his efficient management, the Company has paid the standard rate of dividend.

The Corsham Gas Works, which are also being taken over by the Bath Gas Company, are smaller, supplying a township of about 3000 inhabitants.

GAS ACTS (1920 AND 1929) ORDERS.

SECTION 6.

Wolstanton United Urban District Council.

The Council shall, from April 1, 1930, charge according to the number of B.Th.U. supplied, and shall on or before Jan. 1 give notice of the calorific value of the gas they intend to supply.

DECLARATIONS OF CALORIFIC VALUE.

Ashford Urban District Council.—475 B.Th.U. (April 1, 1930).

Barnoldswick Urban District Council.—450 B.Th.U. (April 1, 1930).

Congleton Corporation.—500 B.Th.U. (April 1, 1930).

Droitwich Corporation.—475 B.Th.U. (April 1, 1930).

Gainsborough Urban District Council.—450 B.Th.U. (April 1, 1930).

L.M.S. 40-TON SIDE-DISCHARGING WAGONS.

Mention has already been made in these columns of the new 40-ton side-discharging wagons which have been ordered by the L.M.S.R. for the conveyance of coal in bulk to the Stonebridge Park electrical power station, which is used for the supply of current to the Watford electrified lines.

We are indebted to the "Railway Magazine" for some further particulars regarding this unique departure in British railway coal conveyance practice. The Railway Company have ordered thirty of these wagons from the Birmingham Railway Carriage and Wagon Co., Ltd., built to the design of Mr. E. J. H. Lemon, Carriage and Wagon Superintendent, L.M.S.R.

The wagons are fitted with the automatic-vacuum brake, and the intention is to run them in trains consisting of twelve wagons. It is well known that one of the difficulties in the introduction of high-capacity wagons in this country is the height of the colliery screens, and the inadequate facilities for handling such wagons in colliery yards. There are certain collieries, however, where it is possible for the screens to take these wagons, and these collieries happen to be among those from which the L.M.S. take supplies. It was therefore decided, for the purpose of demonstrating what economies, if any, could be obtained, to build thirty of these high-capacity wagons and to run them between these collieries and the Stonebridge Park power station.

The principal dimensions are as follows:

Length, over headstocks	32 ft.
,, buffers	35 ,,
,, body	33 ft. 6 in.
Maximum width of body (over plates)	8 ,, 11 ,,
Size of top opening	32 ft. by 7 ft. 5 in.
Height from rail to top of body	10 ft. 9 in.
Estimated capacity	1794 c.ft.

The wagons are fitted with diamond frame bogies, and the tare weight is very low for a wagon of this type, being 19 tons only. The essential feature of the design is that the wagon is completely self-discharging. The construction of the hopper (which is in the form of a latticed girder), together with the shape of the wagon generally, including the whole of the top, which is set inwards with the object of stiffening, adds considerably to the strength of the wagon. The doors are operated independently, and it will be possible to empty and clear a train of these wagons in about 30 minutes.

Though this particular design of coal wagon is now making its first appearance in this country, a similar type has been in use in Germany for some time. The whole train of twelve wagons will carry some 480 tons of coal; while, in the matter of handling the wagons, the whole train can be accommodated in a siding of 420 ft.

GAS FATALITY AT BENTLEY.

An inquest was held at Bentley on Nov. 2 on William Henry Evans (42), a miner, lodging in Broughton Avenue, Bentley, who was found in bed in a gas-filled room.

Mrs. Mary Robinson, at whose house Evans had lodged for five years, said that last week the gas supply in the house had failed, and a new meter was fixed. When the gas failed she turned off all the gas taps, but did not go into Evans' bedroom. After the new meter was fixed, the fitter remarked that all seemed right, but witness said it never occurred to her to go into Evans' bedroom to see that the tap in his room was turned off. Evans must have tried to get a light and left the tap on during the time the supply was disconnected. While Evans was asleep the supply was put on and he was gassed.

George Hall, gasfitter, employed by the Doncaster Corporation, who was responsible for fixing the new meter, said in cases of this kind fitters had no definite instructions about warning householders to see the taps were turned off. They used their common sense. He did not give warning in this case.

Mr. R. Watson, Gas Manager, said all the employees had standing instructions to see the gas taps were turned off. He did not say specific instructions were given in this case.

Recording "Accidental death," the Coroner said he was not attaching blame, but he thought Mr. Hall should have carried out instructions received and have made inquiries as to whether all the taps were turned off.

COAL TRADE REPORTS.

From Our Own Correspondents.

NORTH-EAST COAST.

The market remains without special feature, and the political situation with regard to the mines is naturally proving a hindrance to business development. A good deal of coal had been sold for next year at good prices before the present developments, but in to-day's circumstances collieries and merchants do not know at what prices to offer forward business, and foreign buyers are faced once again with the uncertainty of delivery, which has been so damaging to our trade in the post-war years.

In the meantime, the only real feature of strength is steam coals, both screened Durhams and Northumberlands being in active demand; the former being steadily quoted at 17s. 6d. to 18s. 6d. f.o.b., and the latter at 16s. 9d. to 17s. Durham unscreened coals generally are meeting with varying fortune. Wear Special gas are quiet, but fairly steady, at 17s. 3d. to 17s. 6d., with best qualities quoted at 16s. 6d. to 16s. 9d. Seconds are 15s. to 15s. 3d., and have shown an improving tendency of late. Coking coals are variable, without any great demand, and are quoted at 15s. 3d. to 15s. 9d. Bunkers are very quiet, with bests at 15s. to 15s. 6d., and seconds 14s. 6d. to 14s. 9d.

Coke of all kinds continues in good demand, and gas coke is quoted firmly at 25s. f.o.b. for shipment.

YORKSHIRE AND LANCASHIRE.

The export trade generally shows little alteration. There is a less demand for best hards; but the production is fully taken, with quotations of 18s. to 18s. 6d. per ton. The demand for coke-making slacks is hardly so strong. There is an improved inquiry for house coal; but supplies are easily obtained. For furnace coke there is less pressure; but the production is fully taken. The demand for industrial fuel is little altered.

The following are the Humber bunker and export prices, f.o.b. usual shipping ports:

South Yorkshire.—Hards, Association, bunkers 19s., export 18s. to 18s. 6d.; screened gas coal, export 18s. to 18s. 6d.; washed trebles, export 18s. to 18s. 6d.; washed doubles, bunkers 18s. 6d., export 17s. to 18s.; washed singles, export 16s. to 16s. 6d.; washed smalls, bunkers 15s. 6d. to 15s. 9d., export 14s. to 14s. 6d.; rough slack, bunkers 13s. 6d. to 13s. 9d., export 12s. 6d. to 13s.; smithy peas, export 18s. 6d. to 19s. 6d.

West Yorkshire.—Hartley's (f.o.b. Goole), bunkers 17s. 6d., export 17s. to 18s.; screened gas coal, export 18s. to 18s. 6d.; washed trebles, export 18s.; washed doubles, export 16s. 6d. to 16s. 9d.; washed singles, export 15s. 6d. to 16s.; washed smalls, bunkers 15s., export 13s. 6d. to 14s.; unwashed trebles, export 17s. to 17s. 9d.; unwashed doubles, export 15s. to 16s.; rough slack, bunkers 13s. 6d., export 11s. 6d. to 12s.; coking smalls, export 12s.

Derbyshire and Nottinghamshire.—Top hards, bunkers 19s., export 18s. to 18s. 6d.; cobbles, export 17s. 6d. to 18s. 6d.; washed trebles, export 18s.; washed doubles, bunkers 18s. 3d., export 17s. to 17s. 3d.; washed singles, export 16s. to 16s. 6d.; washed smalls, bunkers 15s. 3d. to 15s. 6d., export 14s. to 14s. 6d.; unwashed doubles, export 16s.; rough slack, bunkers 13s. to 14s., export 11s. 6d. to 12s. 6d.

Yorkshire, Derbyshire, and Nottinghamshire.—Screened steam coal, bunkers 17s. to 18s., export 16s. 6d. to 17s.; gas coke, export 25s.; furnace coke, export 23s. to 24s.; washed steam, Goole (West Yorks.), bunkers 17s. 6d.; Hull (West Yorks.), bunkers 17s. 9d.; Hull (South Yorks.), bunkers 18s., export 17s.

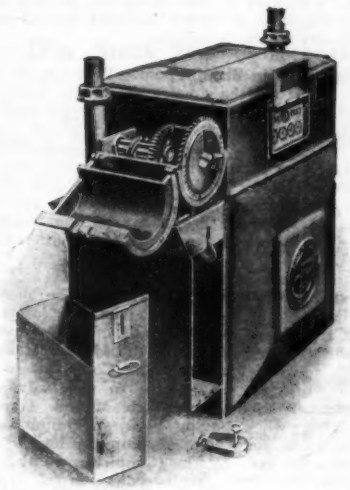
MIDLANDS.

New business continues very disappointing. There is a little more employment at the pits; but the improvement is nothing like so marked as is usual at the beginning of November. This can no longer be attributed to abnormally mild weather. The temperature has fallen with a corresponding rise in consumption. But requirements are being met in so large measure from stocks—householders' stocks and the considerable tonnage put down by merchants when prices were at the bottom—that the usual relation of consumption and production is falsified.

In some of the districts prices of house coal are irregular. Collieries cannot face the loss of orders which insistence upon the full October advances involves. The household trade is subject to such abrupt fluctuations according to the degree of severity in the winter that the present position may be fully reversed. In normal circumstances, however, stocks will, according to calculations made by the trade, continue to affect sales up till Christmas.

Generally, the industrial demand is poor. At the steel-works activity has been waning, and there is no sign of a rally. Blast-furnaces producing forge and foundry pig iron are getting rid of their output. Furnace cokes are firm round 18s. at the ovens. Midland smelters are trying to stabilize pig iron prices at the present level over the next three months. The demand for boiler slacks is slightly stimulated, mainly by increased consumption for heating purposes. Supplies are plentiful at 6s. upwards at the pits. There are a few spot lots of "D.S." nuts on offer, but not enough to demoralize prices, which range up to 12s. or 14s. Bakers' nuts fetch from 18s. up to 22s. for the higher grades.

Bernard Ingram (44), a labourer, of New Wortley, Leeds, was sentenced to six months' hard labour on Oct. 31, for having made a hole in a cellar wall in order to gain access to a neighbour's cellar and rob the gas meter. He obtained the sum of 13s. 7d. from the meter. Prisoner was convicted in June last year for stealing 17s. 6d. from a gas meter.



The "Victory"

PREPAYMENT METER

WITH

PLATE PRICE CHANGER

OUTSIDE VALVE BOX

EVERY PART INTERCHANGEABLE

MADE BY

THE PIONEERS

OF THE SLOT METER

SAWER & PURVES

(BRANCH OF METERS LIMITED)

MILES PLATTING, RADFORD ROAD,

MANCHESTER NOTTINGHAM

45-47, Westminster Bridge Road,

LONDON, S.E.

GAS AND ELECTRIC MAINS IN SUBWAYS.

Dr. Waldo Urges Government Inquiry.

The need for a searching Government inquiry into the question of electric cables in gas main subways throughout London is emphasized in the recently published report of Dr. F. J. Waldo, the City of London and Southwark Coroner, to the Home Secretary.

The main danger, apparently, is that of an explosion occurring on the Thames Embankment, which might cause disastrous flooding of the Metropolis. Explosions in electrical manhole boxes, says Dr. Waldo, have numbered six, as against fourteen in 1927. The danger, however, is not to be feared from coal gas in itself as an original cause, for it is found that in almost all cases of this kind coal gas as a prime factor in the explosions has been excluded—there being generally no accepted scientific explanation of the upheavals. . .

DEFECTIVE SWITCHBOXES.

Dr. Waldo held two fire inquests in 1928, and both of them dealt with outbreaks in the Embankment subway. In both cases the cause was found to be a defective County Council switchbox between the lighting cable in the subway and the Embankment lamps above. A similar cause was found in a third fire which occurred in the same subway just outside the City jurisdiction.

A warning given in the official report on the first of the above-mentioned fires stated that: "In no circumstances should any cable capable of sparking be connected with coal gas in a subway." This warning was followed two months later by the disastrous Holborn explosion. The general view prevailing at the inquiry which was subsequently held indicated that subways are desirable for water mains and for low-tension electric mains, but that they are unsuitable for high-tension electric mains, owing to the explosive effects of a breakdown, and that it was preferable that gas mains should be laid in the ground.

There are at present some seven miles of subways in London for mains and pipes, some of which contain gas mains varying in size from 2 in. to 48 in. Subways possess obvious advantages, such as avoiding the necessity of opening streets for maintenance and repair, and facilitating inspection of mains.

In order to give warning of leaks of gas a continuous detector which would automatically give warning at a central station is recommended, while more adequate ventilation is, of course, also urged. But, as Dr. Waldo points out, there is rarely a *primâ facie* case indicating coal gas as the explosive agent in subways, and it will be difficult for any detector to be adopted which will indicate a defective switchbox or a sudden fuse of electric wire in time for steps to be taken to prevent an explosion or outbreak of fire which may well set up an explosion in a nearby gas main. There is, in fact, Dr. Waldo states, an urgent need for Government inquiry into the whole matter.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *Nov.* 4.

Conditions in the tar products market are unchanged, and there are no changes to report in prices.

Tar Products in the Provinces.

Nov. 4.

There is no change in the markets for tar products.

The average prices of gas-works products during the week were: Gas-works tar, 25s. to 30s. Pitch—East Coast, 47s. 6d. f.o.b. West Coast—(f.a.s.) Manchester, 42s. to 42s. 6d.; Liverpool, 45s. 6d. to 46s. 6d.; Clyde, 45s. 6d. to 46s. 6d. Toluole, naked, North, 1s. 7¼d. to 1s. 8¼d. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 3d. to 1s. 3½d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid and salty, 3¼d. to 3½d.; low gravity, 2d. to 2¼d.; Scotland, 3¼d. to 3½d. Heavy oils, in bulk, North, 5½d. to 6d. Carbolic acid, 60's, 2s. 5½d. to 2s. 6½d. prompt. Naphthalene, £12 to £14. Salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

Benzole Prices.

The following are considered to be the market prices to-day:

	s. d.	s. d.	
Crude benzole . . .	0 10	to 0 11	per gallon at works
Motor ,, . . .	1 5	,, 1 6	,, ,, ,,
90 p.ct. ,, . . .	1 7	,, 1 8	,, ,, ,,
Pure ,, . . .	1 10	,, 1 11	,, ,, ,,

At Preston, on Oct. 30, Mr. W. S. Coates said the Town Council Labour group felt that no house in Preston ought to have a chimney stack. Gas should not be allowed in new houses. It ought to be possible to instal electricity and include the charges in the rent. From a health standpoint it would be good business.

TRADE NOTES.

Centrifugally-made Iron Pipes.

The Stanton Ironworks Company, Ltd., near Nottingham, have decided to put down a further works for the manufacture of their de Lavaud spun iron pipes. The present works, which have been operating for some years past at an output of about 25 miles of spun iron pipes per week, have proved insufficeint for the requirements of the market, and the new works are being laid down for an additional output of 15 miles per week. The pipes in these new works will be made 18 ft. in length, from 4 in. diameter upwards, in place of 12 ft. long, for which the present works are designed.

CONTRACTS OPEN.

Gasholders and Tank.

The Borough of Bexhill invite tenders for a standard guided gasholder in steel tank, and a waterless holder. [See advert. on p. 406.]

Electricity Failure in Hammersmith.—The electric current in the North and South Hammersmith districts failed for several hours on the night of Oct. 31, and the gloom was only relieved in certain streets equipped with gas lighting. Traffic in the main streets was thrown into confusion, the only lights being from the tramcars, which are provided with a separate supply.

Tenders for Dunstable Share Issue.—Tenders for the 300 £10 "C" ordinary shares (1929), which were offered by A. & W. Richards, of 37, Walbrook, E.C., on behalf of the Directors of the Dunstable Gas and Water Company were opened on Oct. 30, the issue being considerably over-subscribed at prices ranging from £10 15s. per share down to the minimum of par. The average figure obtained was £10 5s. 6d. per share.

British Empire Trade Exhibition, Buenos Aires, 1931.—Official notice has now been given to the Management of the British Empire Trade Exhibition to be held in Buenos Aires in 1931 that His Majesty's Government has recognized the importance of the occasion and decided to participate on a suitable scale. For this purpose the Government exhibits will be housed in one of the finest buildings in the extensive Exhibition grounds, which have been lent by the Argentine Rural Society.

Gas Explosion in Glasgow.—An explosion of gas occurred in an untenanted house in the Maryhill district of Glasgow on the night of Oct. 25. Three persons were inspecting the house, prior to occupancy, at about nine o'clock in the evening. They were entering a room with a lighted candle when the explosion occurred, caused by the ignition of gas which had accumulated in the room. Some windows were blown out and plaster was dislodged, but the three persons received only slight scorching injuries and were able to proceed to their homes.

Gas Exhibition at Leeds.—The Leeds Corporation Gas Department had what may justly be described as the most attractive of all the stands at a Better Housing and Housekeeping Exhibition held at Fenton Street Drill Hall, Leeds, from Oct. 22 to Nov. 2 inclusive. The Gas Department stand was of an unusual island shape, more or less enclosed in artistic grey walls, but with four entrances into the interior, where was a representative and attractive display of gas fires, cookers, water heaters, and lighting appliances of the most up-to-date type. The fires included the new gas-ignited coke fire, which attracted a great deal of attention.

Gas Exhibits at Rotherham.—The Rotherham Gas Department had three stands at the recent trades exhibition, held, under the auspices of the Rotherham Chamber of Trade, at the Drill Hall. On the stands were to be seen the latest and best appliances for the satisfactory and, what is more, the economical use of gas for all cooking, heating, and water-heating operations. The popularity of the all-enamelled gas cooker, with its stainless taps and reliability of service, was instanced by the fact that during the past two years 1200 gas cookers have been installed in Rotherham, and the fact that the different hotels, cafés, and restaurants do the majority of cooking in gas ovens is further proof of the utility of gas. Visitors to the Exhibition were able to see gas fires in all finishes and to fit any shape or size of grate, radiators, wash coppers, hot water circulators, gas irons, and innumerable types of gas-lighting appliances, elaborate in design, but at the same time inexpensive.

Healthy Gas Workers.—Contrary to the general belief that employment in gas-works is both dirty and dangerous, the "Co-partnership Journal" of the South Metropolitan Gas Company in its current issue points out that it is, in reality, one of the most healthy of industrial occupations. "From a total of 9320 industrial workers admitted to the Edinburgh Royal Infirmary," says the Journal, "only thirty-three came from the ranks of gasworkers. Among all other spheres of labour represented in the wards, missionaries and ministers, soldiers and musicians alone showed a lower sickness rate. Further, investigation last year by the Australian Government into the health of employees in gas-making plants showed that 90 p.ct. of the men were either of average physical condition or above it, and the average length of service for all occupations was over twelve years, while in many individual cases periods of from thirty to forty years were recorded." Comparison of the lists of retirements and deaths among the 7000 co-partner employees on the pay roll of the South Metropolitan Gas Company strengthens the view that the manufacture of gas is a healthy occupation. The figures published each month in the "Co-partnership Journal" show that, on an average, the proportion of retirements to deaths is three to one.

Fire at Garston Gas-Works.—A fire broke out in the early hours of the morning of Nov. 3 at the Garston Gas-Works. The fire brigade were summoned shortly after midnight, and found that a large coke dump, situated at the side of the retort house, was well alight. Assistance was obtained from the central fire station, and an engine and a small Dennis pump were quickly on the scene. The dump consisted of several hundreds of tons of coke, but was got under control, a number of men being left on duty at the works throughout the day in case a further outbreak should occur. There was no danger to any of the buildings.

Calorific Value Tests in Birmingham.—Professor F. W. Burstall, in his quarterly report to the Chairman of the General Purposes Committee of the Birmingham City Council, states that the average calorific value for the whole four of the stations, based on the number of the tests as laid down by the Gas Referees, is 476·3 B.Th.U. per c.ft., when reduced to standard conditions of temperature and pressure. The declared value of the gas set up by the Gas Referees to the Birmingham City Council is 475 B.Th.U. per c.ft. In no single test made throughout the quarter has the gas had such a value as to exceed the limits of variation laid down by the Gas Referees.

Compensation for Glasgow Gasworkers.—The position of employees in the Glasgow Gas Department who may lose their employment with the Corporation as the result of the proposed contract with Messrs. John Gardner (Collieries), Ltd., for a supply of gas in bulk, has been considered by the Gas Committee. It is recommended that the workmen who decide to take advantage of the offer of preference of employment with Messrs. Gardner receive from the Committee, when having their superannuation contributions returned to them, such compensation for loss of Corporation employment as may be fixed by the Committee on the basis of the number of years' service of the employees concerned.

"Coalite" Demonstration in Manchester.—Yesterday, Manchester saw a white coal cart drawn by a white horse and driven by a white-smocked coal man. This new fashion in coal carts, which was sent by Low-Temperature Carbonisation, Ltd., to take part in Manchester's Smoke Abatement Week, was attended by a white-uniformed woman, who talked to housewives on the merits of "Coalite." The object of the demonstration was to show that smokeless fuel derived from low-temperature carbonization is not only clean to burn but clean to handle. "Coalite" is described as "coal with the smoke taken out of it." It lights as easily as coal, burns with a blue flame, and gives off greater heat.

Man Electrocuted by Portable Heater.—The inquest was held at Brixton on Oct. 30 on William Edgar Barratt (35), of Herne Hill, who was found dead in his bathroom with his face resting on a portable electric heater, which was alight, beside the bath. A doctor said that Mr. Barratt died from electrocution, and the jury returned a verdict of "Death by misadventure." The doctor suggested that deceased was handling the heater while he was in the bath and fell. As he did so, the current went either from his face or his hand to his feet which were in contact with the bath. An electrical inspector to the L.C.C. said that nothing of an electric nature should be within the reach of a person in a bath, for he was making a perfect contact with the earth through the pipes.

Price Reduction at Crewkerne.—The Directors of the Crewkerne Gas and Coke Company have announced a further reduction of 6d. per 1000 c.ft. in the price of gas from 4s. 3d. to 3s. 9d. (*less* 3d. per 1000 c.ft. discount for prompt payment) as from the reading of the meters at the quarter ended Sept. 30. Slot meters will be altered accordingly. A special reduction of 6d. per 1000 c.ft. is also being made in the price of gas for power purposes, making the price 3s. 3d. per 1000 c.ft. (*less* a discount of 3d. per 1000 c.ft. for prompt payment) and subject to an annual rebate according to the following scale when the quantity consumed during the year is: 200,000 to 500,000 c.ft., 2½ p.ct. discount; 600,000 to 1 million c.ft., 5 p.ct. discount; and 1,500,000 to 2 million c.ft., 7½ p.ct. discount. These reductions make the price of gas in Crewkerne lower than it was in 1914 (pre-war), and it is claimed to be lower than that of any other company supplying a town of similar population.

Gas Street Lighting at Petts Wood.—Nine gas lamps are to be placed on the Petts Wood Estate by the Chislehurst Urban Council. The Council considered the possibility of installing electric light, but decided in favour of gas because it is cheaper. A statement on the subject was made by Mr. E. V. Mills, Chairman of the Council, at the meeting on Oct. 21. He said the Council had an application on the subject from the estate owner a year ago, but the matter was deferred to await developments. Recently Mr. W. E. Dann (Chairman of the Works Committee) and Miss Tiarks considered the subject of lighting generally, and this was their recommendation: "It was suggested that we should have electric street lights," said Mr. Mills, "but investigations showed that electric lighting would cost a lot more. The cost of installation would be higher and also the expense of maintenance. As there would be no difference in the quality of the light, we decided to have gas." It was stated that people on the estate were anxious that a special type of lamp should be provided, and as the estate owner would meet the difference in price, the Council was agreeable.

As a result of a temporary breakdown at the Electricity Works, a number of shops and dwelling-houses in Arbroath were deprived of electric light for some time on the night of Oct. 25. The breakdown, which was due to one of the fuses in the feeder boxes having blown, occurred shortly before 6.30, and some inconvenience was caused.

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr	Dividends. Last Hf. Yr.	NAME.	Quotations. Oct. 31.	Rise or Fall on Week.	Transactions Lowest and Highest Prices.
£			%p.a	% p.a.				
171,978	Stk.	Aug. 15	5	5	Aldershot 5 p.c. max. C.	70—75	..	..
412,992	,,	,,	4	4	Do. 4 p.c. Pref.	71—74	—2	..
1,561,858	,,	Sept. 26	7½	7½	Alliance & Dublin Ord.	96—99	..	97½—98½
374,000	,,	July 11	4	4	Do. 4 p.c. Deb.	62—66	..	..
522,655	,,	Aug. 29	7	7	Barnet Ord. 7 p.c.	112—115	..	..
800,000	1	Oct. 24	1/4½	1/4½	Bombay, Ltd.	1⅜—1⅝*	..	..
172,500	10	Aug. 29	8½	9	Bournemouth 5 p.c.	12⅝—13¼	..	..
500,050	10	,,	7	7	Do. B 7 p.c.	12⅜—12⅝	..	12½—12⅝
439,160	10	,,	6	6	Do. Pref. 6 p.c.	10½—11	..	..
80,000	Stk.	July 11	3	3	Do. 3 p.c. Deb.	54—57	..	..
169,025	,,	,,	4	4	Do. 4 p.c. Deb.	72—75	..	..
357,900	,,	Aug. 29	7½	7½	Brighton & Hove 6 p.c. Con.	113—116	..	113½—115
371,880	,,	,,	6⅔	6⅔	Do. 5 p.c. Con.	100—103	..	..
1,227,500	,,	July 25	5	5	Bristol 5 p.c. max.	88—89a	..	..
555,000	,,	Sept. 12	7½	7	British Ord.	115—118	..	115—116
100,000	,,	June 27	7	7	Do. 7 p.c. Pref.	112—117	..	..
180,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	71—74	..	..
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb.	94—97	..	..
160,000	10	May 30	6	8	Cape Town, Ltd.	9—10	..	..
160,000	10	Apl. 24	4½	4½	Do. 4½ p.c. Pref.	6¾—7½	..	..
160,000	Stk.	June 27	4½	4½	Do. 4½ p.c. Deb.	71—76	..	..
696,860	,,	July 25	6	6	Cardiff Con. Ord.	98—101	..	..
827,850	,,	June 27	7½	7½	Do. 7½ p.c. Red. Deb.	99—102	..	..
187,150	,,	Aug. 15	6½	5	Chester 5 p.c. Ord.	87—92b	..	..
98,936	1	Oct 10	†2/-	†2/-	Colombo Ltd. Ord.	34/—36/-	..	..
24,495	1	,,	1/4½	1/4½	Do. 7 p.c. Pref.	19/—21/-	..	..
375,402	1	Oct. 10	1/9½	1/9½	Colonial Gas Assn. Ld. Ord	23/6—25/6	..	..
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	20/—22/-	..	..
9,073,280	Stk.	July 25	7	5	Commercial Ord.	92—95	—1	92—93
475,000	,,	June 13	3	3	Do 3 p.c. Deb.	55—58	—1	55
787,560	,,	Aug. 15	7	7	Croydon sliding scale	105—108	..	105—105½
400,100	,,	,,	5	5	Do. max. Div.	77—82	..	80½
542,270	,,	Aug. 29	10	7	Derby Con.	118—121e	..	..
55,000	,,	June 27	4	4	Do. Deb.	68—71e	..	..
200,000	,,	Aug. 29	5	5	East Hull Ord. 5 p.c.	73—75	..	..
1,002,180	10	Sept. 12	†7	†4	European, Ltd.	11—13	—2	10—13½
12,708,480	Stk.	July 25	5⅔	5⅔	Gas Light & Coke 4 p.c. Ord.	18/9—19/3/	+·/3	18/6—19/3
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	60—62	—1	61½—64½
4,187,020	,,	,,	4	4	Do. 4 p.c. Con. Pref.	71—74	+1	71½—72½
5,000,620	,,	June 13	3	3	Do. 3 p.c. Con. Deb.	55—58	..	57½
5,643,770	,,	,,	5	5	Do. 5 p.c. Red. Deb.	97—100	..	99½—100
48,500	,,	Aug 29	7	7	Hastings & St L. 5 p.c. Conv	98—103	..	..
388,740	,,	,,	5½	5½	Do. 5½ p.c. Conv.	77—82	..	..
70,000	10	Oct. 10	†10	†10	Hongkong & China, Ltd.	13½—14½	..	..
313,200	Stk.	Aug. 29	6	6½	Hornsey Con. 3½ p.c.	84—87	..	..
1,976,000	,,	May 30	10	20	Imperial Continental Cap.	340—360	—25	340—372½
232,180	,,	Aug. 15	8½	8½	Do. 8½ p.c. Red. Deb.	71—76	+1	..
235,242	,,	Aug. 15	7½	8	Lea Bridge 6 p.c. Ord.	115—118	..	..
2,145,907	,,	Aug. 15	6½	6	Liverpool 5 p.c. Ord.	94—95b	..	..
600,000	,,	Sept. 26	7	7	Do. 7 p.c. Red. Pref.	99—101b	..	..
168,736	,,	Aug. 29	8	9	Maidstone 5 p.c. Cap.	122—127	..	..
63,480	,,	June 27	8	8	Do. 8 p.c. Deb.	53—56	..	..
15,000	b	June 13	†8	†10	Malta & Mediterranean	5½—6	..	..
322,000	—	Oct. 1	5½	5½	Metrop't'n (of Melbourne) 5½ p.c. Red. Deb.	96- 99	..	95—97½
841,930	Stk.	May 30	†5	†9	Montevideo, Ltd.	105—108	..	106—107
2,051,818	,,	July 25	5⅔	5	Newcastle & Gateshead Con.	16/9—17/3d/	..	..
682,856	,,	,,	4	4	Do. 4 p.c. Pref.	71½—72¾d	..	..
691,705	,,	June 27	8½	8½	Do. 8½ p.c. Deb.	67½—68½d	..	..
131,780	,,	Aug. 29	7/1/0	7½	North Middlesex 6 p.c. Con.	112—117	+2	..
300,000	,,	Apl. 24	9	7	Oriental, Ltd.	111—116	..	..
205,162	,,	June 27	8	8	Plym'th & Ston'house 5 p.c.	110—113	..	..
424,416	,,	Aug. 29	8½	8	Portsm'th Con. Stk. 4p.c. Std.	113—118	..	..
241,446	,,	,,	5	5	Do. 5 p.c. max.	80—88	..	..
2,334,464	1	June 27	—	†5	Primitiva Ord.	30/—33/-	—2/-	30/—33/9
344,500	100	June 8	4	4	Do. 4 p.c. Red. Deb.	92—95	..	..
695,000	Stk.	July 25	4	4	Do. 4 p.c. Red. Deb. 1911	79—82	..	..
416,845	,,	June 27	4	4	Do. 4 p.c. Cons. Deb.	79—82	..	81
180,000	10	Sept. 26	6	6	San Paulo 6 p.c. Pref.	8½—9	..	..
1,786,968	Stk.	Aug. 29	6½	6½	Sheffield Cons.	105—107e	..	..
95,000	,,	Jan. 10	4	4	Do. 4 p.c. Deb.	75—77e	..	..
90,000	10	June 13	‡4	‡4	South African	4—6	..	..
6,909,895	Stk.	July 26	7½	5	South Met. Ord.	99—101	..	99—100½
500,000	,,	,,	6	6	Do. 5 p.c. Irred. Pf.	106—109	..	..
1,895,445	,,	July 11	3	3	Do. 3 p.c. Deb.	54—57	..	..
784,800	b	Sept. 12	6½	6½	Do. 6½ p.c. Red. Db.	98—100	..	..
91,500	,,	Aug. 15	8½	8½	South Shields Con.	109—111d	..	..
1,548,795	,,	July 25	6½	6½	South Suburban Ord. 5 p.c.	101—104	..	101—102
468,887	,,	June 27	5	5	Do. 5 p.c. Deb.	94—97	..	..
947,740	,,	Aug. 15	5	5	Southampton Ord. 5 p.c. max.	77—80	..	..
191,275	,,	June 27	4	4	Do. 4 p.c. Deb.	70—73	..	..
179,014	,,	July 25	8	8	Sutton Ord.	116—119	..	..
67,828	,,	June 27	5	5	Do. 5 p.c. Deb.	90—93	..	..
960,000	,,	Feb. 21	7	7	Swansea 7 p.c. Red. Pref.	100—102	..	..
900,000	,,	June 27	6½	6½	Do. 6½ p.c. Red. Deb.	100—102	..	..
1,002,275	,,	Aug. 15	6⅔	6⅔	Tottenham District Ord.	104—107	..	104—105½
150,000	,,	,,	5½	6½	Do. 5½ p.c. Pref.	97—100	..	..
181,395	,,	June 13	4	4	Do. 4 p.c. Deb.	74—77	..	..
389,994	,,	Aug. 29	7	7	Uxbridge, Maidenhead, & Wycombe 5 p.c.	93—98	..	..
88,890	,,	,,	5	5	Do. 5 p.c. pref.	85—90	..	..
80,000	,,	July 11	9	9	Wandsworth, Wimbledon, and Epsom— Wandsworth A 5 p.c.	135—140	..	..
355,836	,,	,,	7½	7½	Do. B 5½ p.c.	112—117	..	114½—115½
433,585	,,	,,	6⅔	6⅔	Do. C and New	95—100	..	..
353,000	,,	,,	7½	7½	Do. Wimbledon 5 p.c.	105—110	..	..
98,000	,,	,,	7½	7½	Do. Epsom 5 p.c.	113—118	..	..
300,000	,,	,,	6	6	Do. 5 p.c. Pref.	87—92	..	..
88,416	,,	June 27	3	3	Do. 3 p.c. Deb.	54—57	..	..
384,742	,,	,,	4	4	Do. 4 p.c. Deb.	74—77	..	..
307,500	,,	,,	5	5	Do. 5 p.c. Deb.	93—96	..	..

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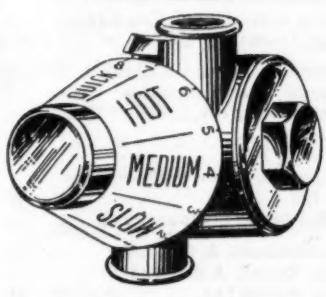

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	PAGE
Abbott, Birks, & Co.	—
Alder & Mackay, Ltd.	355
Aldridge & Ranken, Ltd.	—
Allan, Thomas, & Sons, Ltd.	407
Anglo-American Oil Company, Ltd.	415
Arden Hill & Co.	—
Asbestos Cement Building Products, Ltd.	356
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Berk, F. W., & Co., Ltd.	Wrapper I.
Blakeley (Firth), Sons, & Co., Ltd.	406
Braddock, J. & J.	Centre X., 405
Bray, George, & Co., Ltd.	358
British Aluminium Co., Ltd.	—
British Fibrocement Works, Ltd.	356
British Furnaces, Ltd.	408
British Gas Purifying Materials Co.	405
British Industries Fair	—
British Thomson-Houston Co., Ltd.	360
Broadbent, Thos., & Son, Ltd.	413
Brotherton & Co., Ltd.	—
Bugden, T., & Co.	—
Cambridge Instrument Co., Ltd.	—
Cannon Iron Foundries, Ltd.	359
Carless, Capel, & Leonard	—
Carron Company	—
Celite Products Corporation	—
Cellactite and British Uralite, Ltd.	—
Chapman (Spencer) & Messel, Ltd.	405
Chaseside Engineering Co.	—
Chemical Engineering and Wilton's Patent Furnace Co., Ltd.	Centre VIII., 405
Cheminert Products	—
Clapham Bros., Ltd.	—
Clayton, Son, & Co., Ltd.	415
Cloake, A. G.	—
Cockey, E., & Sons, Ltd.	—
Coleman Foundry Equipment Co.	—
Competition Points for Gas Salesmen	407
Cort, Robert, & Son, Ltd.	354
Cowan, W. & B.	Wrapper III.
Crossley Bros. (Bispham)	410
Crossley Brothers, Ltd. (Openshaw)	—
Cutler, Samuel, & Sons, Ltd.	Centre X
Danks, H. & T. (Netherton), Ltd.	405
Davey, Paxman, & Co., Ltd.	—
Davis Gas Stove Co., Ltd.	363
Davison & Partner, Ltd.	—
Dempster, R. & J. Ltd.	Wrapper I., Centre X
Dempster, R., & Sons, Ltd.	Centre II., 406
Donkin Co., Ltd. (The Bryan)	Wrapper II.
Drakes, Limited	—
Dry Gasholders, Ltd.	—
Duckham, Alexander, & Co., Ltd.	—
Duxbury, Thomas, & Co.	405
Economic Gas Boiler Co., Ltd.	357
Economical Gas Apparatus Construction Company, Ltd.	—
Ellis, Key, & Co.	—
Elm Works, Ltd.	407
Evans, Joseph, & Son (Wolverhampton), Ltd.	412
Expanded Metal Company, Ltd.	—
Falk, Stadelmann, & Co., Ltd.	362
Fletcher, Russell, & Co., Ltd.	—
Foster & Pullen, Ltd.	358
Foster Bros., Ltd.	—
Fraser & Chalmers Engineering Works	—
Gas Chambers and Coke Ovens Ltd.	411
Gas Journal	—
Gas Meter Co., Ltd.	Wrapper IV., 352
Gas Purification and Chemical Co.	Wrapper I., 405
Gas Salesman	407
General Gas Appliances, Ltd.	403
Gledhill-Brook Time Recorders	410
Glenboig Union Fireclay Co., Ltd.	409
Glover, George, & Co., Ltd.	349
Glover, Thos., & Co., Ltd.	368
Goodall, Clayton, & Co., Ltd.	412
Grant, David, & Co.	414
Green and Boulding, Ltd.	407
Griffin & Tatlock, Ltd	358
Griffiths Bros. & Co. (London), Ltd.	Wrapper I
Hall, John, & Co., Stourbridge, Ltd.	412
Hardtmuth, L. & C.	—
Harris and Pearson	412
Head, Wrightson, & Co., Ltd.	Wrapper I., 410
Heathman, J. H.	411
Hislop, R. & G.	411
Holman Bros., Ltd.	—
Holmes, W. C., & Co., Ltd.	Wrapper I., 351
Holst, K., & Co.	—
Horseley Bridge and Engineering Company, Ltd.	—
Horstmann Gear Company, Ltd.	—
Hortonspheres	—
Humphreys and Glasgow, Ltd.	366
Hutchinson Bros., Ltd.	—
Institute of Chemistry	—
Jenkins, W. J., & Co., Ltd.	—
Jobling, J. A., & Co., Ltd.	360
Kaye, Joseph, & Sons, Ltd.	—
Keith, James, and Blackman Company, Ltd.	416
Kent, George, Ltd.	—
King, Walter, Ltd.	407
King's Patent Agency	405
Kirkham, Hulett, and Chandler, Ltd.	—
Kleenoff Co.	405
Koppers Coke Oven Co., Ltd.	407
Laidlaw, R., & Son (Edin.), Ltd.	414
Le Bas Tube Co., Ltd.	408
Lead Wool Company, Ltd.	—
Lewis, Edwin, & Sons, Ltd.	—
Lighting Trades Ltd.	364
London Electric Firm	—
Lord, J. E. C. (Manchester), Ltd.	—
Macpherson, Donald, & Co., Ltd.	—
Main, R. & A., Ltd.	Centre VII.
Manchester Oxide Co., Ltd.	405
McKelvie, James, & Co.	Wrapper I.
Metals Coating Co., Ltd	361
Metallisation (Sales), Ltd	361
Metropolitan Vickers Electrical Co., Ltd	—
Mewburn, Ellis, & Co.	405
Midland Flexible Metallic Tubing Co., Ltd.	—
Midland Railway Carriage and Wagon Co., Ltd.	—
Midland Tar Distillers	—
Mitchell, H.	—
Mobberley & Perry, Ltd.	—
Moore, Walter, & Sons	—
New Conveyor Co., Ltd.	413
Newton Chambers & Co., Ltd.	Centre VI.
Orme, George, & Co.	—
Oughtibridge Silica Firebrick Co.	362
Parkinson Stove Co., Ltd.	Centre III.
Parkinson, W., & Co.	352, 368
Patent Retorts, Ltd.	411
Pearson, E. J. & J., Ltd.	—
Peckett & Sons, Ltd.	412
Peebles & Co., Ltd.	—
Penney and Porter, Ltd.	—
Perfecta Meters, Ltd.	—
Phillips, J. W. & C. J., Ltd.	407
Piggott, Thos., & Co., Ltd.	350
Pocock, Herbert	—
Pollard Engineering Co., Ltd.	—
Potterton, T. (Heating Engineers), Ltd.	—
Premier Gas Engine Co., Ltd.	—
Provincial Exhibitions, Ltd.	—
Pulsometer Engineering Company	Wrapper IV.
Purimachos Ltd.	—
Quasi-Arc Co., Ltd.	—
Radiation Ltd.	Centre IV., V., 363
Reavell & Co., Ltd.	411
Renold, Hans, Ltd.	367
Renwick, Wilton & Co., Ltd.	—
Richmonds Gas Stove Co., Ltd.	—
Riley, A. J., & Son, Ltd.	—
Riley, John, & Sons, Ltd.	—
Ross, Chas., Ltd.	405
Rotary Meter Company, Ltd.	364
Rotherham and District Collieries Association, Ltd.	Wrapper IV.
Ruscoe, John, & Co., Ltd.	411
Sankey, J. H., & Son, Ltd.	—
Sawer & Purves	401
Scottish Tube Co., Ltd.	408
Sheepbridge Coal & Iron Co., Ltd.	Wrapper IV.
Slebe, Gorman, & Co., Ltd.	410
Smith Meters, Ltd.	—
Smith, S., & Sons (M.A.), Ltd.	—
Solent Engineering Co., Ltd.	—
South Metropolitan Gas Company	Wrapper II.
Spencer-Bonecourt, Ltd.	Centre IX
Spencer Chapman & Messel, Ltd.	405
Spencer, W., & Sons (Southall)	—
Stanton Ironworks Co., Ltd.	—
Staveley Coal and Iron Co., Ltd.	353
Stein, J. G., & Co., Ltd.	Wrapper I.
Stewarts and Lloyds, Ltd.	Wrapper I.
Strachan & Henshaw, Ltd.	349
Stringer Bros.	—
Submerged Combustion, Ltd.	—
Sugg, Wm., & Co., Ltd.	—
Super-Centrifugal Engineers, Ltd.	—
Taylor, Joseph (Saturators), Ltd.	—
Thames Bank Iron Co., Ltd.	—
Thompson, J. (Wolverhampton), Ltd	—
Tilghman's Patent Sand Blast Co.	—
Tilley High Pressure Gas Synd., Ltd.	409
Torbay Paint Company, Ltd.	Wrapper I.
Town Gas Boilers (Bonecourt), Ltd.	—
Trier Bros., Ltd.	—
Trotter, Haines, and Corbett, Ltd.	407
Tully Sons & Co., Ltd.	414
Turner Brothers Asbestos Co., Ltd.	356
Turner, F. (Art Metal), Ltd	—
Vertical Gas Retort Synd., Ltd.	416
Vickery, J. H., & Co., Ltd.	—
Wailes Dove Bitumastic, Ltd.	356
Walker, C. & W., Ltd.	Centre XI.
Waller, Geo., & Son, Ltd.	350
Waterless Gasholder Co., Ltd.	—
Wellington Tube Works, Ltd.	—
Welsbach Light Company, Ltd.	—
West's Gas Improvement Co.	Centre XII.
Westwood & Wrights	407
Whessoe Foundry and Eng. Co., Ltd	—
Willey & Co., Ltd.	—
Williamson, Cliff, Ltd.	—
Wilson (George) Gas Meters, Ltd.	405
Wilsons & Mathlesons, Ltd.	—
Winn, Paul, & Co., Ltd.	—
Wonder Washer Co.	365
Wood, Hugh, & Co., Ltd.	—
Woodall-Duckham Co., Ltd.	Centre I.
Wright, Alex., & Co., Ltd.	Centre XI.
Wright, John, & Co.	—

Agents Wanted	407
Appointments Vacant & Wanted	406
Company Notices	407
Contracts Open	406
Educational	—
Gas Works for Disposal	406
Offices to Let	406
Stock and Share Issues	406
Plant, &c., for Sale and Wanted	406

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OFFICES—Handsome modern suites in Victoria Station House from 600 to 5500 sq. ft. Partitioned and Decorated. Rent, including Rates, Taxes, Central Heating, all Modern Conveniences, 10s. per foot per Annum.

Apply to the MANAGER, VICTORIA STATION HOUSE, VICTORIA STREET, S.W. 1.

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DISTRIBUTION Superintendent of Good Address is open for APPOINTMENT. Progressive Company preferred, where practical ability to Organize and Control Sales and Distribution Department will be fully appreciated and Remuneration paid accordingly. 14 Years' experience as Superintendent.
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State Age, Experience, and Salary required, to No. 8004, "GAS JOURNAL," 11, BOLT COURT, FLEET STREET, E.C. 4.

REQUIRED, immediately, a General WORKS FOREMAN. Sound Mechanical Training and Experience essential, and applicants should be fully capable of carrying-out all normal repairs to Works Plant and Machinery. A thorough knowledge of Modern Carbonizing Methods is essential.
Remuneration commencing at £4 per week, together with benefits under an existing Co-Partnership Scheme.
Applications, giving Training, Experience, References, and stating when at liberty, to be sent at once to the MANAGER, GRANTHAM GAS COMPANY, HIGH STREET, GRANTHAM. Envelopes to be endorsed "Works Foreman."

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GASHOLDER.—Spiral Guided 100,000 c.ft. capacity, and Steel Tank, with cup. New Outer Lift could be supplied to make capacity 200,000 c.ft. Attractive price for prompt acceptance.

Purifiers—Dry Lute Type. Two Sets of Four, 10 ft. square; One Set of Two, 10 ft. square; and One Set of Two, 8 ft. square, with Lifting Gear Valves, &c.

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Retort Ironworks for beds of 4's, 5's, 6's, 7's, and 8's. 22 in. by 16 in. Self-Sealing Mouthpieces. 6 in. Ascension Pipes and all to follow.

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Tar and Liquor Pumps, Steam and Belt-Driven.

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GAS-WORKS Plant. We Purchase, for Dismantling, for Re-Use or Scrap, any DISCARDED PLANT or IRONWORK. Best prices, prompt removal by experienced staff, covered by insurance for all risks.
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GAS Plant for Sale.—Combined STOKING MACHINE with DE BROUWER CHARGER, New 1924.
National GAS ENGINE, and 14 KW. GENERATOR by Lancashire Dynamo Company, Ltd.
TULLY PLANT, capacity 100,000 c.ft. per day, with Boiler, Gas Engine, and Fan.
Further particulars can be obtained from J. E. HOLLIDAY, Engineer, Manager, and Secretary, OTLEY GAS COMPANY, OTLEY, YORKS.

BEAUMONTS, of Bow,
Offer an opportunity of acquiring a SMALL COMPLETE GAS-WORKS. For Immediate Delivery.
COUNTRY HOUSE PLANT, consisting of:
BED of 2 RETORTS.
MAINS, Hydraulic and Foul.
PURIFIER, 7 ft. by 3 ft. 6 in.
HOLDER, 14 by 14 ft., about 2000 c.ft.
Suitable for Country Works Supply, or for Large Works as a Coal Testing Plant.
May be Inspected, Erected, by appointment with us, in Sussex.
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HEATERS OR CONDENSERS. All Steel; 13½ ft. by 4½ ft. dia. Containing 200 2-in. Tubes.
STORAGE TANK, 14 ft. by 4½ ft. dia. Dished Ends, ⅜ plate.
TANK, 36 ft. dia. by 12 ft. deep, ⅜ shell.
PUMPS, Steam Driven for Feed. 1 and 2 in. delivery.
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BOTTLE JACKS, 10 Ton, with G.M. Nuts.
SULPHATE PLANT, Half-ton, by Biggs Wall.
Also, for IMMEDIATE DELIVERY:
HOLDER, 160,000 c.ft.; EXHAUSTERS, several; STATION METERS; BOILERS, STEAM and GAS ENGINES; SCRUBBERS; WATER GAS PLANT.
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(GAS DEPARTMENT.)

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Specifications and particulars to be obtained from Mr. L. G. Humphrys, A.M.I.Mech.E., Engineer and Manager, Gas Department, 5, Sea Road, Bexhill-on-Sea.
Sealed Tenders, endorsed "Standard Gasholder," or "Waterless Gasholder," as the case may be, to be delivered to the undersigned not later than Twelve noon, Nov. 27, 1929.
The Council do not bind themselves to accept the lowest or either Tender.

S. J. TAYLOR,
Town Clerk.

Town Hall,
Bexhill-on-Sea,
Nov. 2, 1929.

SALE OF STOCK BY TENDER.

By Order of the Directors.
TUNBRIDGE WELLS GAS COMPANY.

Messrs. A. & W. RICHARDS
are Instructed to OFFER FOR SALE BY TENDER
£25,000
SLIDING SCALE STOCK,
ranking equally with existing similar Stock, now receiving Dividend at the rate of £7 4s. per cent. per annum.
Minimum Price of Issue, £106 per £100.
Yielding at that price, £6 15s. 10d. per cent. Also
£15,000
5½ PER CENT. PERPETUAL DEBENTURE STOCK.
Minimum Price of Issue, Par.

Prospectus and Forms of Tender (which latter must be sent in by 11 o'clock on Tuesday, the 12th of November) may be obtained of A. & W. RICHARDS, 37, WALBROOK, E.C. 4.